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VOLUME I

TRANSCRIPT OF RECORD

SUPREME COURT OF THE UNITED STATES

OCTOBER TERM, 1954

No. 367

FEDERAL POWER COMMISSION, PETITIONER

vs.

THE STATE OF OREGON, THE FISH COMMISSION OF OREGON, THE OREGON STATE GAME COMMISSION

ON WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE NINTH CIRCUIT

PETITION FOR CERTIORARI FILED SEPTEMBER 24, 1954
CERTIORARI GRANTED NOVEMBER 8, 1954

No. 13345

United States
Court of Appeals
for the Ninth Circuit

THE STATE OF OREGON, THE FISH COMMISSION OF OREGON, THE OREGON STATE GAME COMMISSION,
Petitioners,

vs.

FEDERAL POWER COMMISSION,
Respondent.

PORTLAND GENERAL ELECTRIC COMPANY,
Intervenor.

Transcript of Record

Petition for Review to Set Aside an Order of the Federal Power Commission

In Three Volumes

VOLUME I.

(Pages 1 to 320, inclusive)

Phillips & Van Orden Co., 870 Brannan Street, San Francisco, Calif.

INDEX

[Clerk's Note: When deemed likely to be of an important nature, errors or doubtful matters appearing in the original certified record are printed literally in italic; and, likewise, cancelled matter appearing in the original certified record is printed and cancelled herein accordingly. When possible, an omission from the text is indicated by printing in italic the two words between which the omission seems to occur.]

Page

Application for License, Project No. 57, filed May 23, 1949 1-117

Application for License, Pelton Project No. 2030, filed May 23, 1949..... 117-170

Application for Rehearing of the State of Oregon, et al. 447

Certificate of Transcript of the Record 483

Certification of Record of Hearing, Presiding Examiner's 315

Decision and Order, Presiding Examiner's Recommended 321

Exceptions of the State of Oregon, et al..... 390

Letter dated June 8, 1949, by Columbia River Salmon & Tuna Packers Assn..... 169

Letter dated June 8, 1949, by Western Representative of the Isaac Walton League of America, Inc. 171

Letter dated June 9, 1949, by the Fish Commission of Oregon to FPC and enclosed statement 172-194

Letter dated June 15, 1949, by FPC to the Secretary of the Interior 195

Letter dated June 17, 1949, by FPC Giving Notice of Application to Hydroelectric Commission of Oregon and Others..... 199

Letter dated June 17, 1949, by FPC to Public Utilities Commissioner of Oregon Giving Notice of Application 201

Letter dated June 17, 1949, by FPC to the Governor of Oregon Giving Notice of Application 202

Letter dated June 22, 1949, by Columbia River Salmon & Tuna Packers Assn..... 203

Letter dated June 24, 1949, by Public Utilities Commissioner of Oregon 205

Letter dated July 7, 1949, by the Hydroelectric Commission of Oregon 206

Letter dated July 28, 1949, by the Western Representative of the Isaac Walton League of America, Inc. 207

Letter dated July 29, 1949, by Oregon Division of the Isaac Walton League of America, Inc. 209

Letter dated December 19, 1949, Supplementing Application 212

Letter dated April 30, 1951, by FPC to the Bureau of Land Management..... 239

License for Project No. 2030 as Executed and Accepted by Portland 466

Notice dated June 17, 1949, of Application for License 197

Notice dated Feb. 12, 1952, of Opinion No. 222 and Order Published in the Federal Register 481

Opinion No. 222 entered Dec. 18, 1951, and issued Dec. 21, 1951 417

Order Denying Application for Rehearing entered Feb. 26, 1952 481

Order Denying Motion for Leave to Present Oral Argument 416

Order Denying Motion for Omission of Intermediate Decision Procedure entred July 3, 1951 313

Order Fixing Hearing entered April 24, 1951.. 237

Order Granting Intervention of the State of Oregon, et al., entered June 14, 1951..... 243

Order Granting Intervention of Oregon Division of Isaac Walton League, Inc., entered June 14, 1951 242

Order Granting Petition of the Portland General Electric Company to Intervene..... 523

Order Issuing License (Major) entered Dec. 18, 1951, and issued Dec. 21, 1951..... 428

Petition for Intervention of the Oregon Division of the Isaac Walton League of America, Inc. 305

Petition of Intervention of the State of Oregon 309

Petition for Review to Set Aside an Order of the FPC 495

Presiding Examiner's Certification of the Record of Hearing 315

Presiding Examiner's Recommended Decision and Order 321

Second Supplement to Application for License filed June 15, 1951 244

Statement of Points, Petitioner's (USCA).... 516

Stipulation that Original Exhibits May be Considered (USCA) 522

Supplement to Application for License filed April 9, 1951 214

Second 244

Telegram dated June 12, 1951, by the Assistant Attorney General of Oregon Requesting Authority for the State of Oregon, et al., to Intervene 241

Transcript of Proceedings and Testimony.... 524

Witnesses:

Bertram, L. G.

—direct 529

—cross 630

Transcript of Proceedings—(Continued)

Witnesses—(Continued)

Campbell, Charles

—direct 689

—cross 705

Campbell, John L.

—direct 535

Chinook, John T.

—direct 527

—cross 528

Deshazer, Glen

—direct 532

—cross 533

Farley, William R.

—direct 612

Hodge, Edwin T.

—direct 593

—cross 597

Hurley, John M.

—direct 641

—cross 656, 664

—redirect 683

—recross 684

Transcript of Proceedings—(Continued)

Witnesses—(Continued)

Johnson, Donald

—direct 754

—recalled, cross 822

—redirect 930

—recross 931

Kemmerich, Alphonse

—direct 633

McKernan, Donald L.

—direct 768

—cross 803

—recalled, cross 936, 980

—redirect 1031

Nartz, J. W.

—direct 530

—cross 531

Pearce, Cecil

—direct 610

Powers, T. A.

—direct 539

Puustinnen, William

—direct 618

Transcript of Proceedings—(Continued)

Witnesses—(Continued)

Riddell, Norman A.

—direct 813

Ring, Ronald L.

—recross 546

Robins, T. M.

—direct 587

—cross 591

Schanck, F. R.

—direct 576

—cross 583

See, C. F.

—direct 541

Swearengen, Marshall

—direct 525

—cross 526

Turner, Howard

—direct 542

Veatch, John C.

—direct 548

—cross 555

Page

Proceedings in U. S. C. A. for the Ninth Circuit 1033
Argument and submission (omitted in printing) 1033
Order directing filing of opinion and filing and recording of judgment 1033
Opinion, Stephens, J 1033
Dissenting opinion, Healy, J 1041
Judgment 1045
Order denying petition for rehearing 1045
Clerk's certificate (omitted in printing) 1045
Order extending time to file petition for writ of certiorari 1046
Order granting certiorari 1046

APPLICATION FOR LICENSE

(Act of June 10, 1920, 41 Stat., 1063)

(1) The Columbia Valley Power Company, a corporation organized and existing under and by virtue of the laws of the State of Delaware, and having its office and principal place of business in the City of Wilmington in said State, in pursuance of a preliminary permit issued to the applicant on the 6th day of February, 1923, does hereby make application to the Federal Power Commission for a license for a project described herein and shown on general and detailed maps signed by the applicant on the 19th day of March, 1924, which maps are filed herewith and made a part hereof, said license to authorize the construction, operation, and maintenance of certain project works, the principal ones of which are designated as follows on said maps:

Pelton Site

(a) An arched masonry dam about 500 feet long on the crest and of the maximum height of 165 feet above the rock bottom or the river (136 feet above normal low water) located on the Deschutes River 6¾ miles northwest of the town of Madras as shown on Exhibit J. A shaft and tunnel spillway on the east bank of the river sufficient to carry 20,000 cubic feet per second, the expected maximum flood flow of the river. A pond created by the dam ex-

tending from the dam site south about 7½ miles along the river bed to a point in the river known as the Metolius site mentioned and described hereafter.

(c) A power house located immediately below the dam completed for 51,000 horsepower water wheel installation and the necessary generators and other electrical apparatus. [2006*]

(d) Transmission lines. Tentative plans have been prepared for transmitting the power generated to the existing market. The exact location of these transmission lines will depend upon contracts entered into with the local distributing companies. As these tentative plans would be an embarrassment to the Columbia Valley Power Company in negotiations now in progress with the local distributing companies, permission is therefore requested to submit the final plans for transmission at a later date.

Metolius Site

(a) An arched masonry dam about 800 feet long on the crest and of the maximum height of 320 feet above normal low water located in the Deschutes River at a point about 5½ miles west of the town of Metolius and about 8 miles south of and upstream from the Pelton site previously described. A tentative location is shown on Exhibits J and K attached. No designs have been prepared for this structure since it is not proposed to undertake its

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* Page numbering appearing at top of page of original certified Transcript of Record.

construction until the Pelton site shall have been developed and placed in operation.

(2) The location of the projects applied for is as follows:

(a) In the State of Oregon.

(b) In the Counties of Jefferson and Deschutes.

(c) On the following named stream: Deschutes River. Navigable and carrying commerce to the following extent: Not navigable.

(d) In the region of the following named cities and towns: Near the towns of Madras and Metolius.

(3) The proposed scheme of development for the project is as follows: [2007]

The construction of a dam at the Pelton site and of a power house immediately adjacent to the dam as shown on the accompanying plans which has for its purpose the generation and distribution of electrical energy. The further construction of a dam and power house at the Metolius site for the same purpose.

(4) The proposed use or market for the power to be developed is as follows:

It is proposed to supply wholesale power to the existing distributing systems and to large manufacturing industries in Portland and vicinity as well as to manufacturing enterprises which may be located at or near the site, in addition to supplying power consumption in the Deschutes Valley through the local distributing companies. The capacity of this market to absorb the power created at the Pel-

ton site is shown on the report of our Engineers, Exhibit P of this application and a part thereof.

(5) The location and capacity of all power projects owned or operated by the applicant, the markets supplied thereby, and the relation thereof to the project applied for, are briefly described as follows: None.

(6) The following exhibits are filed herewith and are hereby made a part of this application:

Exhibit A—Certified copy of articles of incorporation;

Exhibit B—Official statement of organization and list of officers;

Exhibit C—Description of project boundary;

Exhibit D—Evidence that applicant has complied with requirements of the Oregon law; [2008]

Exhibit E—Statement of water rights with acknowledgment of State Engineer of Oregon;

Exhibit F—Statement whether the project involves use of Government dam;

Exhibit G—Statement of financial ability;

Exhibit H—Statement of effect on flow of stream;

Exhibit I—Estimate of power capacity;

Exhibit J—General map;

Exhibit K—Detailed map;

Exhibit L—General design (4 drawings);

Exhibit M—General description of equipment;

Exhibit N—Estimate of cost;

Exhibit O—Statement of time desired;

Exhibit P—Letter of applicant accompanying application including a report of engineers.

In Witness Whereof the applicant has caused its name and corporate seal to be hereunto signed and affixed by Henry G. Riter its Vice President thereunto duly authorized this 19th day of March, 1924.

[Seal] /s/ By HENRY G. RITER, 3rd
Vice President, Columbia Valley
Power Company

Attest:

/s/ GORDON A. HARDWICK,
Secretary

F.P.C. Received March 25, 1924.

EXHIBIT A

Certified Copies of Articles of Incorporation

A certified copy of the articles of incorporation was filed with the application for preliminary permit and reference is hereby made thereto.

This exhibit is a part of the application for license made by the undersigned this 19th day of March, 1924.

COLUMBIA VALLEY POWER
COMPANY,

/s/ By HENRY G. RITER, 3rd,
Vice President

F.P.C. Received March 25, 1924.

Exhibit A—(Continued)

CERTIFICATE OF INCORPORATION OF THE COLUMBIA VALLEY POWER COMPANY, INC.

We, the undersigned, in order to form a corporation for the purposes hereinafter stated under and pursuant to the provisions of an Act of the Legislature of the State of Delaware, approved March 10, 1899, entitled "an Act providing a General Corporation Law" and the acts amendatory thereof and supplemental thereto, do hereby certify as follows:

First: The name of this corporation is The Columbia Valley Power Company, Inc.

Second: Its principal office in the State of Delaware, is located at No. 7 West Tenth Street, in the City of Wilmington, County of New Castle. The name and address of its resident agent is the Corporation Trust Company of America, No. 7 West Tenth Street, Wilmington, Delaware.

Third: The nature of the business or objects or purposes proposed to be transacted, promoted, or carried on are:

To purchase or otherwise acquire, hold, use, operate, sell, lease or otherwise dispose of all water rights, water powers and water privileges;

Without limitation to hold, purchase, mortgage and convey real and personal property of every kind and description in any state or territory of the United States or elsewhere;

Exhibit A—(Continued)

To construct, purchase or otherwise acquire, hold, use, operate, sell, lease or otherwise dispose [2011] of hydraulic, electric and other works, plants, buildings, machinery, equipment, pipe lines, distributing systems, transmission lines, dams, flumes, ditches, canals, apparatus, devices or processes for use in connection with such work;

To purchase or otherwise acquire, hold, use, operate, sell, lease or otherwise dispose of machinery, engines, mechanical devices and articles of every character and description;

To manufacture, produce, generate, store, acquire, purchase, sell, control, use, dispose of, distribute and supply electricity and electrical energy or any other power or force in any form and for any purpose whatsoever;

To transform power generated by hydraulic or other plants into electrical or other energy for any and all purposes;

To apply for, purchase, or otherwise acquire, hold, use, sell, assign, lease, grant licenses in respect of, mortgage or otherwise dispose of letters patent of the United States, or of any foreign country, patent rights, licenses and privileges, inventions, improvements and processes, copyrights, trademarks and trade names, relating to or useful in connection with any business of the corporation.

To purchase, acquire, hold, sell, transfer and dispose of the stock, bonds or other evidences of indebtedness of this corporation in the manner and to the extent now or hereafter authorized or permitted by law.

Exhibit A—(Continued)

To issue bonds, debentures, or other obligations of this corporation from time to time for any of the objects or purposes of the corporation and to secure the same by mortgage, pledge, deed of trust or otherwise.

To carry out all or any of the foregoing purposes as principal, factor, agent, trustee, contractor or otherwise, either alone or in conjunction with any person, firm, association or corporation, or by or through trustees, managers, agents or otherwise.

To conduct its business in all or any of its branches so far as permitted by law in the State of Delaware and in other states of the United States of America and in the territories and the District of Columbia, and for and in connection with such business and without limitation or restriction as to amount, to purchase, hold, possess, mortgage and convey real and personal property and to maintain one or more offices and agencies either within or anywhere without the State of Delaware.

In general to do any or all things and exercise any and all powers which may now or hereafter be lawful for a corporation to do or exercise under and in pursuance of the laws of the State of Delaware or of any other law that may now or hereafter be applicable to the corporation.

Fourth: The total number of shares authorized is one thousand (1,000), which shares are without nominal or par value. Such stock may be issued by the corporation from time to time for such con-

Exhibit A—(Continued)

sideration as may be fixed from time to time by the Board of Directors thereof.

Fifth: The number of shares with which this corporation will commence business is ten (10).

Sixth: The names and places of residence of the subscribers to the capital stock and the number of shares subscribed for by each are as follows:

T. L. Croteau, Wilmington, Del.: 8 shares.

M. A. Bruce, Wilmington, Del.: 1 share.

S. E. Dill, Wilmington, Del.: 1 share.

Seventh: This corporation is to have perpetual existence.

Eighth: The private property of the stockholders shall not be subject to the payment of corporate debts to any extent whatever.

Ninth: The number of directors of the corporation shall be fixed and may be altered from time to time as may be provided in the By-Laws, but shall not be less than three [2013] (3). In case of any increase in the number of directors, the Board of Directors then in office shall have power to fill the vacancies in the Board of Directors arising from such increase (unless such vacancies shall have been previously filled by the stockholders) by the appointment of additional directors, and any directors so appointed shall hold office until the next annual election and until their successors shall be duly elected and qualify.

Exhibit A—(Continued)

Tenth: In furtherance, and not in limitation of the powers conferred by statute, the Board of Directors is expressly authorized:

Pursuant to the affirmative vote of the holders of at least a majority of the stock issued and outstanding, given at a stockholders meeting duly called for that purpose, or when authorized by the written consent of at least a majority of the holders of the stock issued and outstanding, the Board of Directors shall have power and authority at any meeting to sell, lease or exchange all of the property and assets of this corporation, including its good will, its corporate franchises and all water rights, water powers and water privileges and interests in the nature thereof, upon such terms and conditions as its Board of Directors deem expedient and for the best interests of the corporation.

To make and alter the By-Laws. Any By-Laws made by the Board of Directors under the power conferred hereby may be altered or repealed by the directors or stockholders.

From time to time, without the assent or vote of [2014] the stockholders, to fix the times for the declaration and payment of dividends; to fix the amount to be reserved as working capital over and above its capital stock paid in; and to authorize and cause to be executed mortgages and liens upon all the property of the corporation, or any part thereof.

Exhibit A—(Continued)

From time to time to determine whether and to what extent, and at what times and places and under what conditions and regulations, the accounts and books of this corporation (other than the stock ledger), or any of them, shall be open to inspection of stockholders; and no stockholder shall have any right of inspecting any account, book or document of this corporation except as conferred by statute, unless authorized by a resolution of the stockholders or directors.

If the By-Laws so provide, to designate two or more of the number to constitute an Executive Committee, which Committee shall for the time being as provided in said resolution or in the By-Laws of this corporation, have and exercise any or all of the powers of the Board of Directors in the management of the business and affairs of this corporation, and have power to authorize the seal of this corporation to be affixed to all papers which may require it.

The corporation may in its By-Laws confer powers upon its directors in addition to the foregoing, and in addition to the powers and authorities expressly conferred upon them by the statute. [2015]

Both stockholders and directors shall have power, if the By-Laws so provide, to hold their meetings, and to have one or more offices within or without the State of Delaware, and to keep the books of this corporation (subject to the provisions of the statutes), outside of the State of Delaware at such

Exhibit A—(Continued)

places as may from time to time be designated by the Board of Directors.

Eleventh: No contract or other transaction between the corporation and any other corporation shall be affected or invalidated by the fact that any one or more of the directors of this corporation is or are interested in, or is a director or officer, or are directors or officers of such other corporation, and any director or directors, individually or jointly, may be a party or parties to, or may be interested in, any contract or transaction of this corporation or in which this corporation is interested; and no contract, act or transaction of this corporation with any person or persons, firm or corporation, shall be affected or invalidated by the fact that any director or directors of this corporation is a party, or are parties to or interested in such contract, act or transaction or in any way connected with such person or persons, firm or corporation, and each and every person who may become a director of this corporation is hereby relieved from any liability that might otherwise exist from contracting with the corporation for the benefit of himself or any firm, association or corporation in which he may be in anywise interested. Directors so interested shall [2016] be counted when present at director's meetings for the purposes of determining the existence of a quorum and may vote at such meetings as fully and with the same effect as if not interested.

Twelfth: This corporation reserves the right to

Exhibit A—(Continued)

amend, alter, change or repeal any provision contained in this Certificate of Incorporation, in the manner now or hereafter prescribed by statute, and all rights conferred upon stockholders herein are granted subject to this reservation.

In Witness Whereof, we the undersigned, being each of the original subscribers to the capital stock hereinbefore named, do make and file this Certificate, hereby declaring and certifying that the facts herein stated are true, and do respectively agree to take the number of shares of stock hereinbefore set forth, and accordingly have hereunto set our hands and seals this 23rd day of April, A.D. 1920.

[Seal] /s/ T. L. CROTEAU
[Seal] /s/ M. A. BRUCE
[Seal] /s/ S. E. DILL

In presence of:

/s/ HERBERT E. LATTER [2017]

State of Delaware,
County of New Castle—ss:

Be It Remembered that on this 23rd day of April, 1920, personally came before me, Herbert E. Latter, a Notary Public for the State of Delaware, T. L. Croteau, M. A. Bruce and S. E. Dill parties to the foregoing Certificate of Incorporation, known to me personally to be such, and severally acknowledge the said certificate to be the act and deed of the signers respectively, and that the facts therein stated are truly set forth.

Exhibit A—(Continued)

Given under my hand and seal of office the day and year aforesaid.

[Seal] /s/ HERBERT E. LATTER,

Notary Public, appointed Feb. 25, 1919, State of Delaware. Term of two years.

F.P.C. Received Jan. 27, 1921. [2018]

State of Pennsylvania,
County of Philadelphia—ss:

Gordon A. Hardwick, being duly sworn, deposes and says that he is the Secretary of The Columbia Valley Power Company, Inc., a corporation organized and existing under the laws of the State of Delaware; that the annexed is a true copy of the Certificate of Incorporation of the said corporation, and of the whole thereof.

/s/ GORDON A. HARDWICK

Sworn to before me this 6th day of May, 1920.

[Seal] /s/ WILLIAM J. DICKSON
Notary Public. Commission expires February 21, 1923.

F.P.C. Received Jan. 27, 1921.

Exhibit A—(Continued)

State of Delaware

Office of Secretary of State

I, Everett G. Johnson, Secretary of State of the State of Delaware, do hereby certify that the Certificate of Incorporation of "The Columbia Valley Power Company, Inc.," was received and filed in this office the twenty-third day of April, A.D. 1920, at 1 o'clock p.m.;

And I do hereby further certify that the aforesaid corporation is duly incorporated under the laws of the State of Delaware and is in good standing and has a legal corporate existence so far as the records of this office show and is duly authorized to transact business within said State.

In Testimony Whereof, I have hereunto set my hand and Official seal, at Dover, this twenty-seventh day of April, in the year of our Lord one thousand nine hundred and twenty.

[Seal] /s/ EVERETT G. JOHNSON,
Secretary of State. [2020]

State of Delaware

Office of Secretary of State

I, Everett G. Johnson, Secretary of State of the State of Delaware, do hereby certify that the above and foregoing is a true and correct copy of Certificate of Incorporation of "The Columbia Valley Power Company, Inc.," as received and filed in this office the twenty-third day of April, A.D. 1920, at 1 o'clock p.m.

Exhibit A—(Continued)

In Testimony Whereof, I have hereunto set my hand and official seal at Dover, this twenty-third day of April in the year of our Lord one thousand nine hundred and twenty.

[Seal] /s/ EVERETT G. JOHNSON,
Secretary of State. [2021]

F.P.C. Received Jan. 27, 1921.

EXHIBIT B

Official Statement of Organization and List of Officers

There is filed herewith on Form 1 a certified copy of the organization of the corporation and list of officers and directors.

This exhibit is a part of the application for license made by the undersigned this 19th day of March, 1924.

COLUMBIA VALLEY POWER COMPANY
/s/ By HENRY G. RITER, 3rd,
Vice President. [2022]

Official Statement of Organization of Corporation and List of Officers and Directors, Columbia Valley Power Company, Inc.

I, Gordon A. Hardwick, Secretary of Columbia Valley Power Company, Inc., do hereby certify that the organization of said corporation has been completed; and that the corporation is authorized to

Exhibit B—(Continued)

proceed with the project applied for according to the existing laws of the states of Delaware and Oregon.

I further certify that the following is a true list of the principal officers and of the directors of said corporation, with the full name and official designation of each, to-wit:

Robert O. Hayward, President.

H. G. Riter, 3rd, Vice-President.

David G. Fisher, Vice-President.

Gordon A. Hardwick, Secretary.

Gordon A. Hardick, Treasurer.

Directors: Robert O. Hayward, H. G. Riter, 3rd, David G. Fisher, E. H. Bulmahn, Gordon A. Hardwick.

Witness my hand and the seal of the corporation this 19th day of March, 1924.

[Seal] /s/ GORDON A. HARDWICK

This statement is a part of the application for license made by the undersigned this 19th day of March, 1924.

COLUMBIA VALLEY POWER COMPANY, INC.

/s/ By HENRY G. RITER, 3rd,
Vice-Pres. [2023]

EXHIBIT C

Description of Project Boundaries

The entire project including both the Pelton and Metolius sites and the reservoirs or ponds created

Exhibit C—(Continued)

by the dams at these sites is located in the canyons of the Deschutes Metolius and Crooked Rivers and, with possible exceptions noted in the case of the Metolius site, the property neither has at this time nor will have at any future time any value whatsoever except for water power purposes.

It is the intention to locate the project boundaries 200 feet distant horizontally from the flow lines of the reservoirs taking the water surface at what is assumed to be maximum high water. Since last April the Columbia Valley Power Company has had survey parties in the field almost continuously but these have met with many difficulties in attempting to locate, in accordance with the Land Office surveys, the boundaries as just described. These difficulties are principally due to the fact that more than one land survey, and sometimes as high as three, have been made of the same or portions of the same township and it has been impossible, up to this time, to make certain the location on the ground the monuments necessary to fix definitely the land lines for the particular survey which has been finally accepted as official by the General Land Office. The land to be occupied is almost entirely precipitous, rocky canyon walls. There are no important private interests in land ownership. The whole territory is rugged and difficult of access. The following are the boundaries of the area which is required [2024] for this project:

Starting at a point 600 feet north of a meander corner monument marked section 18 and 19, town-

Exhibit C—(Continued)

ship 10, south range 13 east, on the west bank of the Deschutes River about 40 feet above the mean low water surface; thence in a westerly direction to a point 200 feet beyond the contour of elevation 1556 feet; thence southerly along the west bank of the Deschutes River, 200 feet distant from the contour of elevation 1556 feet, for a distance of about 7.7 miles to a point 1000 feet north of the site adopted for the Metolius dam; thence westerly to a point 200 feet beyond the contour of elevation 1888 feet; thence generally southerly and westerly along the west bank of the Deschutes River and the north bank of the Metolius River at a distance of 200 feet from the maximum water surface of the proposed reservoir following the contour of elevation 1888 feet, a distance of approximately 10.3 miles; thence crossing the Metolius River at a point 200 feet upstream from the maximum water surface at elevation 1888 feet; thence along the bank of the Metolius River, 200 feet distant from the water surface of the reservoir to be formed at elevation 1888 feet, toward the mouth of the Metolius River a distance of approximately 9.5 miles; thence southerly along the west bank of the Deschutes River, along a line 200 feet distant from the contour line at elevation 1888 feet, to a point 200 feet upstream from the point at which the water surface in the Deschutes River is at 1888 feet during maximum high water a distance of about 6.8 miles; thence across the Deschutes River along its easterly bank following a line 200 feet distant from the exterior of a reservoir to be

Exhibit C—(Continued)

formed with the water surface at 1888 feet, [2025] a distance of about 5 miles to the mouth of the Crooked River; thence along the westerly bank of the Crooked River following a line 200 feet distant from the exterior of the reservoir to be formed with the water surface at 1888 feet elevation, a distance of about 6 miles from the mouth of the Crooked River; thence crossing the Crooked River at a point 200 feet upstream from the point where the water surface of the Crooked River at maximum high water is at elevation 1888 feet; thence along a line 200 feet distant from the exterior of the reservoir to be formed with water at an elevation of 1888 feet, a distance of about 6 miles, along the easterly bank of the Crooked River to its mouth; thence following a similar line down the Deschutes River along its easterly bank along a line 200 feet from contour 1888, a distance of about 2.8 miles to the point opposite to the point described as being 1000 feet north of the site adopted for the Metolius dam; thence westerly to a point 200 feet east of a point on the surface of the ground at 1556 feet elevation; thence following along the easterly bank of the Deschutes River 200 feet from the contour of elevation 1556, a distance of about 7.7 miles to a point on the east bank of the Deschutes River opposite the starting point and thence westerly to the point of beginning as described herein.

All of the property described herein is included in public lands of the United States or reservations or other lands under the control of the United

Exhibit C—(Continued)

States with the exception of three small private holdings, one power plant on the Crooked River owned by the Deschutes Power Company and a small pumping plant on the Deschutes River owned by a group of farmers. [2026]

The general location of these lines is shown on Drawing 3, Exhibit K, a part of this application for license.

As the location of the transmission lines have not yet been definitely fixed, permission is requested to present boundary maps for them at such date prior to the start of construction as may be approved by the Commission.

This exhibit is a part of the application for license made by the undersigned this 19th day of March, 1924.

COLUMBIA VALLEY POWER COMPANY

/s/ By HENRY G. RITER, 3rd,
Vice President. [2027]

EXHIBIT D

Evidence that applicant has complied with the requirements of the Oregon law

There is filed herewith in triplicate certified copies of a "Certificate of Legal Existence" of the Columbia Valley Power Company and its right to do business and to develop water power in the state

Exhibit D—(Continued)

of Oregon from the Corporation Commissioner of that State.

The Columbia Valley Power Company anticipates certain industrial uses for power which will require a considerable portion of its output. It also plans on selling power only in wholesale quantities and not direct to the consuming public. For these reasons it has not yet been determined by the Public Service Commission of Oregon whether a "Certificate of Public Necessity" will be necessary as required for utilities under the laws of Oregon. Whatever steps may be found necessary along these lines will be taken when a decision has been reached.

The immediate plans of the company do not involve the construction of transmission lines or other works over such property or along public thoroughfares where franchises or rights of way have to be obtained from any state, county or municipal governmental organization. If any such requirements develop, arrangements will be made to comply with whatever steps are provided under the laws of Oregon and its cities, counties or other political units.

This exhibit is a part of the application for license made by the undersigned this 19th day of March, 1924.

COLUMBIA VALLEY POWER COMPANY

/s/ By HENRY G. RITER, 3rd,
Vice President. [2028]

Exhibit D—(Continued)
State of Oregon
Corporation Department

CERTIFICATE OF LEGAL EXISTENCE

To All to Whom These Presents May Come, Greeting:

Know Ye, That whereas Columbia Valley Power Company, Inc., a corporation organized and existing under and pursuant to the Laws of Delaware with its home office at 7 West 10th Street, in the City of Wilmington, did on the 21st day of August, 1920, file in the office of the Corporation Commissioner of the State of Oregon, a declaration of the desire and purpose of said corporation to engage in business within the State of Oregon, which said declaration was accompanied with a duly authenticated copy of the Certificate of Incorporation of said corporation has paid the declaration and annual license fees, and has complied with the requirements of Section 6727 of Lord's Oregon Laws, preliminary to the issuing of this Certificate of Legal Existence.

Now, Therefore, I, T. B. Handley, Corporation Commissioner of the State of Oregon, Do Hereby Certify, that Columbia Valley Power Company, Inc., a corporation organized and existing under and pursuant to the Laws of Delaware has, on August 21st, 1920, filed in the office of the Corporation Commissioner of the State of Oregon, a declaration of its desire and purpose to engage in business within the State of Oregon, accompanied by a duly authenti-

Exhibit D—(Continued)

cated copy of the Certificate of Incorporation of said corporation satisfactory in substance and form, as required by the provisions of Section 6727 of Lord's Oregon Laws, showing that the full name under which it proposes to transact business is Columbia Valley Power Company, Inc., that the name of the State or Country under whose laws it was organized is Delaware; that the location of its Home Office is at 7 West 10th Street, in the City of Wilmington; that the date of its formation or incorporation was the 23rd day of April, 1920; that the amount of its Capital Stock is Fifty Thousand shares without nominal or par value; that the nature of the pursuit, business or occupation in which it is authorized to engage is: [2029]

To purchase or otherwise acquire, hold, use, operate, sell, lease or otherwise dispose of all water rights, water powers and water privileges;

Without limitation to hold, purchase, mortgage and convey real and personal property of every kind and description in any state or territory of the United States or elsewhere;

To construct, purchase or otherwise acquire, hold, use, operate, sell, lease, or otherwise dispose of hydraulic, electric and other works, plants, buildings, machinery, equipment, pipe lines, distributing systems, transmission lines, dams, flumes, ditches, canals, apparatus, devices or processes for use in connection with such work;

To purchase or otherwise acquire, hold, use, oper-

Exhibit D—(Continued)

ate, sell, lease or otherwise dispose of machinery, engines, mechanical devices and articles of every character and description;

To manufacture, produce, generate, store, acquire, purchase, sell, control, use, dispose of, distribute and supply electricity and electrical energy or any other power or force in any form and for any purpose whatsoever;

To transform power generated by hydraulic or other plants into electrical or other energy for any and all purposes, that the location of the Principal Office within the State of Oregon is at 709 Board of Trade Building, in the City of Portland, in the County of Multnomah; that the name of its attorney-in-fact, constituted and appointed in accordance with the provisions of Section 6726 of Lord's Oregon Laws, is N. D. Simon, whose business address is 709 Board of Trade Building, in the City of Portland, in the County of Multnomah; that the names and addresses of its principal officers, and of its directors and trustees, are as follows:

Robert O. Hayward, Pres. & Director, 28 Nassau St., New York City; H. G. Riter, 3rd, V. Pres. & Director, 1421 Chestnut Street, Philadelphia, Pa.; Gordon A. Hardwick, Sec'y, Treas. & Director, Philadelphia, Pa., that the name and address of its General Agent within the State of Oregon is N. D. Simon at 709 Board of Trade Building, in the City of Portland, County of Multnomah; and that said declaration and statement and duly authenticated copy of Certificate of Incorporation of said corpora-

Exhibit D—(Continued)

tion are now on file in my office, as required by law.

I further certify that said corporation has furnished satisfactory evidence of its legal existence and of its authority, under the laws of its domicile, to engage in the occupation, business or pursuit stated in said declaration, and that it has paid the declaration and annual license fees required by law, as follows: For filing declaration, Fifty and [2030] 00/100 ($50.00), Dollars, and for annual license fee for the current fiscal year ending June 30, 1921, One Hundred Seventy-two and 05/100 ($172.05) Dollars.

In Testimony Whereof, I have hereunto set my hand and affixed hereto the seal of the Corporation Department of the State of Oregon.

Done at the Capitol at Salem, Oregon, this 21st day of August, 1920.

[Seal] T. B. HANDLEY,
Corporation Commissioner.

Gordon A. Hardwick, being duly sworn, hereby deposes and says that he is Secretary of Columbia Valley Power Company, Inc., and that the foregoing is a true and correct copy of the original hereof, held in the files of said company.

/s/ GORDON A. HARDWICK

Sworn to and subscribed before me this 18th day of March, 1924.

[Seal] /s/ WRIGHT KUGLER,
Notary Public. Commission Expires March 7, 1925.

EXHIBIT E

STATEMENT OF WATER RIGHTS, ETC.

The application of the Columbia Valley Power Company for preliminary permit is accompanied by complete statement of the water filings made under the state law of Oregon, certified copies of such records as were evidence of these filings, the record of the means by which these filings became the property of the applicant and data in connection with water rights to which reference is hereby made. Since the date of the preliminary application, the applicant has continued the prosecution of the necessary steps to perfect these water rights under the laws of Oregon which are applicable.

Attached hereto are one certified copy and two uncertified copies of the Order of the State Engineer which Order describes the necessary steps and the time in which these are to be completed whereby these water rights may become permanently vested in the applicant. This Order also is evidence of the payment by the applicant of the fees required by the State of Oregon and a certified copy of the receipts for the payment of the annual license fee which has been due since the date of the order just described and which shows payment for the current year.

Since the date of the Order of the State Engineer, a general adjudication of the water rights of the Deschutes River and its tributaries where these water rights have not yet been adjudicated, has

Exhibit E—(Continued)

been initiated. The applicant has filed proof of claim within the time specified in the notice of this adjudication and has paid the fees required in connection with such adjudication as is evidence [2032] by certified copy of receipt from the State Engineer herewith. The various claims of all claimants in this adjudication have been open to public inspection; the time has expired in which any other claimants who have knowledge of the initiation of this adjudication may file claims and in opinion of applicant's counsel no claim filed for water upon the Deschutes River system has any material bearing upon the perfection of claimant's rights; no contest has been initiated up to the present time by any other claimant and apparently no claim for water in the Deschutes adjudication rests upon any rights or claim to rights which could be made the basis of a successful contest to interfere or in anywise invalidate the rights claimed by the Columbia Valley Power Company.

The only private lands the use of which will be involved in the project of the applicant are two or three small areas of farm lands in the upper portions of the reservoir basin will be created by the construction of the Metolius Dam. It is expected that private negotiations will be successful in acquiring these lands but the exact quantity of land which will need to be acquired can only be determined after the height to which the Metolius Dam may be built is determined as it is believed in each

Exhibit E—(Continued)

instance only a portion of the privately owned lands will be included within the flow lines. The height of the Metolius Dam is subject to the final decision of the Federal Power Commission and as soon as approval is obtained of the definite height steps will be taken to acquire the lands necessary. Under the laws of the State of Oregon it is understood that if private negotiations fail a condemnation suit may be entered where the occupation [2033] of lands for hydro-electric development is necessary.

Two other properties will probably be involved: One is a small hydraulic pumping plant located near the proposed Metolius Dam site which supplies domestic water to a group of eighteen farmers who have some mutual organization owning and operating this plant. The quantity of water pumped is very small, the discharge from the pumps being through inch and a half standard pipe lifting approximately 1300 feet. A convenient place is available for the relocation of this station and the lift will be decreased by the height of the Metolius Dam or approximately 330 feet.

The power plant of the Deschutes Power Company located upon the Crooked River which is now operating under what is understood to be a revocable permit from the Interior Department, will probably be submerged if the Metolius Dam is constructed to the height which is indicated on the plans herewith submitted.

Negotiations have already been instituted by this

Exhibit E—(Continued)

company looking to the extinguishing of whatever rights the Deschutes Power Company may possess and with the probability that arrangements may be made whereby the Columbia Valley Power Company will secure power from the Deschutes Power Company to use for construction purposes prior to the completion of applicant's first unit and after the completion of this unit the applicant will then supply power to the Deschutes Power Company whenever it may be desirable to abandon the operation of its plant upon the Crooked River or when it may be desirable to supplement or replace the power so developed. [2034]

It is believed that all the rest of the lands involved in the construction of the power development and the location of transmission lines as contemplated involves the use only of public lands, Indian or forest reserves or other lands under the control of the Federal government.

This exhibit is a part of the application for license made by the undersigned this 19th day of March, 1924.

COLUMBIA VALLEY POWER COMPANY,

/s/ By HENRY G. RITER, 3rd,
Vice-President. [2035]

Exhibit E—(Continued)

Before the State Engineer of Oregon

In the Matter of the Application of the Columbia Valley Power Company for an Order Fixing Time Within Which to Apply Water Under Certain Filings for Water Rights.

ORDER

The matter of the application of the Columbia Valley Power Company for an order fixing the time within which the full amount of water shall be applied to beneficial use under certain filings made under date of March 11, 1908, and April 27, 1908, and designated as numbers 198 and 212, in the office of the State Engineer, has had full and careful consideration, and it appearing that notice has been given to all known interested parties, and careful consideration given to all matters submitted in connection therewith, and

It further appearing that the Columbia Valley Power Company has complied with the provisions of Chapter 236, Laws of Oregon for 1911, and acts amendatory thereof, by the payment of fees in the amount of Eleven Thousand, Six Hundred Thirty-Eight Dollars, and Eighty Cents ($11,638.80).

It Is Ordered that the time within which the full amount of water covered by the above appropriations, as the same are limited and restricted in the application under consideration, be and the same is hereby made coincident with the time fixed by the Federal Power Commission for the full ap-

Exhibit E—(Continued)

plication of the said water to a beneficial use in the final permit, if any, issued by said Federal Power Commission to the Columbia Valley Power Company covering the development of Power at the so-called Pelton and Metolius sites;

That this order is entered with the express understanding that the water rights of the Columbia Valley Power Company shall be subordinate and inferior to the "subsequently initiated rights to the use of water and withdrawals by the State for the irrigation of lands within the Deschutes River watershed and storage and domestic purposes [2036] incidental thereto, provided that the diversion from the Deschutes River of such water shall be at or above Odin Falls, and that not to exceed 150,000 acres of land to be irrigated from such diversions may be north of Crooked River and Metolius River, and provided, further, that not to exceed 75,000 acres additional may be irrigated from tributaries joining the Deschutes River, between Odin Falls and the location of the most southerly of the proposed power plants of the Columbia Valley Power Company near the mouth of the Metolius River or from the Deschutes River itself, between these points," and shall be limited to 3,500 cubic feet per second, "subject to any reduction in actual stream flow which may be caused by diversion supplying prior rights or to any reduction which may be occasioned by the use of water for irrigation," as described in the preceding paragraph;

Exhibit E—(Continued)

That the rights of the Columbia Valley Power Company shall become null and void in the event of the failure of the Federal Power Commission to issue a final permit to the said Company, and shall terminate with the termination of the rights to the use of the public lands necessary to the development of the Pelton and Metolius power sites.

Dated at Salem, Oregon, this 14th day of September, 1923.

RHEA LUPER,
State Engineer of Oregon. [2037]

(Copy)

State of Oregon,
County of Marion—ss.

I, Rhea Luper, State Engineer of the State of Oregon, do hereby certify that the foregoing copy of an Order entered in the Matter of the Application of the Columbia Valley Power Company for An Order Fixing the Time within which the water shall be applied to beneficial use under certain filings, on September 14, 1923, is a true and correct transcript therefrom, and of the whole of such original order as the same appears of record in my office and custody.

In Witness Whereof, I have hereunto set my hand this 14th day of September, 1923.

RHEA LUPER,
State Engineer of Oregon. [2038]

Exhibit E—(Continued)
State Engineer's Receipts and Statements
State of Oregon

No. 66
Salem, Oregon, September 14, 1923

RECEIVED FROM Columbia Valley Power Company
403 Northwestern Bank Building
Portland, Oregon

The sum of Eleven Thousand Six Hundred Thirty-eight and 80/100 Dol.

Fund	On What Account		Amount
Survey Fund	Claim No. 600		
	Fees from 1916 to 1924 incl. on 23,864 HP		$11,638.80
		$2,269.12	
	Penalty on above claim	567.28	
	Claim No. 601 Fees 1916 to 1923 incl.	$7,041.92	
	H.P. 83,524 Penalty on same	1,760.48	

Received Payment
RHEA LUPER, State Engineer

December 26, 1923. No. 461

RECEIVED FROM Columbia Valley Power Company
403 Northwestern Bank Building
Portland, Oregon

The sum of Eight Hundred Eighty and 24/100 Dollars (880.24)

Fund	On What Account	Amount
Survey	Annual License Fees for 1924 on 83,524 H.P.	880.24

Received Payment
RHEA LUPER, State Engineer.

No. 462
Salem, Oregon, December 26, 1923

RECEIVED FROM Columbia Valley Power Company
403 Northwestern Bank Building
Portland, Oregon

The sum of Two Hundred Eighty-three and 64/100 Dollars ($283.64)

Exhibit E—(Continued)

Fund	On What Account	Amount
Survey	Annual License Fees for 1924 on 23,864 H.P.	283.64

Received Payment
RHEA LUPER, State Engineer.

January 4, 1924. No. 609

RECEIVED FROM Columbia Valley Power Company
403 Northwestern Bank Building
Portland, Oregon

The sum of Two Thousand Three Hundred and 76/100 Dollars ..... ($2,318.76)

Fund	On What Account	Amount
Adjudication	Fees—	
	In re Deschutes River Adjudication	
	Power, 107,383 H. P.	2,317.76
	Recording Certificate Fee	1.00

Received Payment
RHEA LUPER, State Engineer.

Certified a true copy of the original.

[Seal] COLUMBIA VALLEY POWER COMPANY, INC.,
/s/ GORDON A. HARDWICK,
Secretary [2040]

F.P.C. Received March 25, 1924.

EXHIBIT F

Statement Whether Project Involves Use of Government Dam or Structure

This project does not involve the use of any government dam or structure.

This exhibit is a part of the application for

Exhibit F—(Continued)

license made by the undersigned this 19th day of March, 1924.

COLUMBIA VALLEY POWER COMPANY,

/s/ By HENRY G. RITER, 3rd,
Vice-President.

F.P.C. Received March 25, 1924. [2041]

EXHIBIT G

Statement of Financial Ability

Complete evidence of financial ability of the applicant to carry out the project applied for was filed with the application for preliminary permit and reference is hereby made thereto.

This exhibit is a part of the application for license made by the undersigned this 19th day of March, 1924.

COLUMBIA VALLEY POWER COMPANY,

/s/ By HENRY G. RITER, 3rd,
Vice-President.

F.P.C. Received March 25, 1924. [2042]

EXHIBIT H

Statement of Effect on Flow of Stream

The dam to be built across the Deschutes River at the Pelton site as located in Exhibit K and shown in Exhibits J and L will produce a lake

Exhibit H—(Continued)

about 7½ miles long with an average width of about 300 feet. Due to the very large minimum flow of the Deschutes River of approximately 3200 cubic feet per second, the amount of water contained in this lake would be entirely inadequate for the purpose of regulating the flow or of improving the regulation to any appreciable extent. The upper 10 feet of this pond, however, may be used during periods of low water to augment the daily flow and correspondingly reduce the night use thus producing the maximum amount of power at the time of maximum demand. The daily regulation thus provided by this pond will be of benefit to any further power developments which may later be constructed downstream from the Pelton site.

The dam to be built across the Deschutes River at the Metolius site as located in Exhibit K will produce a lake approximately 800 feet wide and extending a considerable distance up the Deschutes, Crooked and Metolius Rivers. By the use of a certain portion of the upper water in this reservoir as storage, it will be possible to effect complete daily and weekly regulation of the river, and possibly, a certain amount of seasonal regulation. It is not possible at this time to determine the economic height for a dam at this site nor to determine what portion of the reservoir capacity can be economically devoted to regulation. It is certain that such regulation will permit larger installations

Exhibit H—(Continued)

in and will insure larger marketable outputs from all future plants which may be [2043] built on the Deschutes River below this point.

This exhibit is a part of the application for license made by the undersigned this 19th day of March, 1924.

COLUMBIA VALLEY POWER COMPANY,

/s/ By HENRY G. RITER, 3rd,
Vice-President.

F.P.C. Received March 25, 1924. [2044]

* * * * *

EXHIBIT I

Estimate of Power Capacity

Reference is made to the drawing No. 1, Exhibit I, which shows a hydrograph of the average monthly flow of the Deschutes River at Mecca for the years 1911 to 1922 inclusive. There has also been prepared a duration curve of flow prepared from the daily records at Mecca for the years 1911 to 1922.

The hydrograph and duration curve were both prepared from records of the U. S. Geological Survey at Portland. Preliminary measurements as yet unfinished appear to show that the flow at the Pelton site is at least equal to and possibly greater than the recorded flows at Mecca.

It will be noted from drawing No. 1—Exhibit I that the minimum daily flow at Mecca is about 3170 cubic feet per second and the maximum recorded daily flow 14,900 cubic feet per second;

Exhibit I—(Continued)

that the minimum average monthly flow is seldom less than 4000 feet per second and during the year 1920 reached a minimum of 3300 cubic feet per second. The duration curves shows that for 90 per cent of the time the flow is in excess of 3870 cubic feet per second, for 70 per cent of the time is in excess of 4400 cubic feet per second and for 30 per cent of the time is in excess of 5000 cubic feet per second. As stated in Exhibit H it will not be possible to provide any seasonal regulation at the Pelton site to increase the normal flow but daily regulation will be provided.

Power Capacity

The power capacity as defined by the Federal Power Commission must be calculated by multiplying the average static head by the regulated water supplied in cubic feet per [2046] second and not in excess of the hydraulic capacity of the approved project works estimated to be available from natural flow or from storage or from both for 90 per cent of the time, times the constant .08.

The crest of the dam at the Pelton site has been shown at elevation 1558 and the crest of the spillway at elevation 1548 or 126 feet above the elevation of mean low water at the Pelton site. This will have the effect of backing water up to the present low water elevation at the Upper Metolius site during periods of low water flow and of raising water to about 3 feet over the upper Metolius site during periods of maximum flow. With the

Exhibit I—(Continued)

use of about 6 feet of pondage for daily regulation, the average head of water in the pond will be 1545 during periods of low water and the water in the pond will back up to the average elevation of 3 feet above the upper Metolius site. Due to the absence of large floods in this river the question of back water is not a serious one and if the two plants are operated in conjunction the small amount of power lost in one plant will be regained in the other. Should, however, one of the lower Metolius sites prove more favorable for the construction of a high dam, the Columbia Valley Power Company stands ready to agree to remove from its spillway sufficient concrete to reduce the elevation of said spillway to 1538 feet or to any elevation between 1538 and 1548 which the Federal Power Commission may direct and to accept such condition as a part of this license. [2047]

Assuming a 6-foot drawdown on the pond for daily regulation the average level of the pond will be 123 feet, which is the average static head. The flow for 90 per cent of the time equals 3900 second feet and the power capacity equals 0.08 x 123 x 3900 = 38,376 horsepower.

At the Metolius site it is difficult to determine the Power Capacity as the exact height of dam that can be constructed at this point is undetermined. In U. S. Geological Survey Water Supply Paper No. 344 a height of 210 feet was used. The maximum possible height has been estimated at 330 feet. The height used in the Deschutes River Report of the Engineers of the Federal Power Com-

Exhibit 1—(Continued)

mission is 270 feet, which is the average of the previous figures.

Since this is the only site on the Deschutes River which affords an opportunity to provide regulation of the flow, it is certain that some portion of the reservoir will be employed for this purpose and the average head thereby reduced. While this regulation will effect a marked increase in the marketable output of all the plants that may be constructed on the Deschutes River, the quantity of storage is not sufficient to have any appreciable effect on the flow for 90% of the time. Disregarding however, any reduction in the average operative head which may result from the use of a portion of the reservoir at Metolius for storage and assuming the average operating hear at 270 feet, the power capacity of the Metolius site is estimated at 0.08 x 270 x 3900 = 84,240 H. P. [2048]

Adding thereto the Power Capacity, for the Pelton Site as previously determined, of 38,376 H.P., the total power capacity of Project applied for is 122,-616 H. P.

This exhibit is a part of the application for license made by the undersigned this 19th day of March, 1924.

COLUMBIA VALLEY POWER COMPANY,

/s/ By HENRY G. RITER, 3rd,
Vice-President.

* * * * *

F.P.C. Received March 25, 1924. [2049]

EXHIBIT O

Statement of Time Desired

Inasmuch as this company intends to operate solely as a wholesaler too existing distributing systems and to manufacturing industries, it is necessary that the first step of this project be coordinated with the construction programs of existing companies and it is therefore requested that it be allowed the full legal time of two years from the date of this license in which to begin work.

It is requested that three years from the time of beginning work be allowed for the completion of the power plant, spillway, transmission lines and an initial installation of machinery at the Pelton site.

It is further requested that permission be granted to start work at the Metolius site within two years after the completion of installation at the Pelton site; that four years from the time of beginning work be allowed for the completion of the dam and an initial installation of machinery at the Metolius site of at least 30,000 k.w.; and that additional installation at the Metolius site to completion shall be at the rate of at least 15,000 k.w. per annum.

This exhibit is a part of the application for license made by the undersigned this 19th day of March, 1924.

COLUMBIA VALLEY POWER COMPANY,

/s/ By HENRY G. RITER, 3rd,
Vice-President.

F.P.C. Received March 25, 1924. [2061]

Exhibit O—(Continued)

This report is a part of Exhibit "P" of the application for License made by the undersigned this 19th day of March, 1924.

COLUMBIA VALLEY POWER COMPANY,
/s/ By HENRY G. RITER, 3rd,
Vice-President. [2062]

EXHIBIT P

Columbia Valley Power Company, Incorporated
1207 Stephen Girad Building
Philadelphia, Penna.

Mr. O. C. Merrill, March 19, 1924
Executive Secretary,
Federal Power Commission,
Washington, D. C.

Dear Sir:

Pursuant to the instructions contained in the Preliminary Permit (Project No. 57 Oregon) which was issued to us by your Commission under date of February 6, 1922, we hereby request a license for said proposed project and for the use and occupancy of such lands and other property of the United States as may be required in the construction, operation and maintenance thereof. The application is presented in accord with the printed Form No. 4 of your Commission as contained in the "Rule and Regulations of the Federal Power Commission" dated June 6, 1921.

Exhibit P—(Continued)

In order to carry out the instructions contained in our Preliminary Permit which you granted us, we employed the engineering firm of Parsons, Klapp, Brinckerhoff and Douglas of New York City, to prepare such maps, plans, specifications and estimates as would in their judgment fulfill your instructions. We also made further surveys and the additional borings required by the permit.

We are appending a report made by our engineers under date of March 15th, 1924, and desire to advise you that they are prepared to give you any additional information which you may desire. [2063]

Detailed plans for the structures at the Pelton site have been prepared and are set forth in the attached application in accordance with the requirements of your regulations.

We have not yet worked out the structural details for the Metolius site but have decided upon general designs only. These are set forth in our application sufficiently so that it is believed that the Commission can reach conclusions as to the suitability and desirability of the plans for the entire project. As will be evident from the examination of the report of our engineers, Exhibit P attached, the geology in the Deschutes River at the two power sites, particularly at the Metolius site, presents a complicated problem which requires protracted investigation and study by experts which is now underway. It is not desirable to complete exhaustive explorations of the Metolius site

Exhibit P—(Continued)

until construction of the Pelton dam has disclosed the character and behaviour of the underlying strata of rock and the exact height to which the dam is to be built has thereby been definitely fixed. The Pelton dam is intended to back water up to the location of the Metolius dam in order to completely utilize the available fall of the Deschutes River between these points. Therefore any possible variation in height of the Pelton dam will change the location of the Metolius dam for which at least three possible sites are available. While preliminary exploration of one of these sites has been made, detailed and exhaustive exploration at this time would be wasted, if the site should be changed.

Furthermore the data obtained by the excavation for and in the construction of the Pelton dam will be of the greatest assistance in preparing the final and detailed [2064] plans of the much higher dam at the Metolius site.

In the meantime in negotiating with tentative customers for important blocks of power, we have found that it is essential before we can close contracts for sale of power that our license incorporate the Metolius site with the Pelton. Our prospective customers insist before entering into contracts with us, that our available supply of power, as specifically set forth in a license from the Federal Power Commission, shall be sufficient to take care of their anticipated growth of load over a period of years. In other words, they are unwilling to tie themselves up to an engagement on the

Exhibit P—(Continued)

Pelton site alone, because it lacks sufficient magnitude to fit their anticipated requirements during the next ten year period.

In our negotiations with manufacturing industries, which are expected to become customers, it has also been found essential to have a sufficient reserve of potential power to meet the expected growth and expansion of their industries.

The financial plans as well as the construction plans cover both sites in accord with the demands of prospective customers that they should be guaranteed additional power from year to year to meet their requirements. It is therefore necessary that the project be treated only as a whole from the beginning and that our license be identical with the scope of the preliminary permit.

In view of the facts set forth above, it is requested that the Commission issue a license for both sites, it being understood that, prior to beginning construction on the Metolius project, thorough foundation explorations will be made in conjunction with the data disclosed by the Pelton [2065] construction and the plans in sufficient detail to satisfy your requirements will be submitted.

Respectfully,

COLUMBIA VALLEY POWER COMPANY,

/s/ By HENRY G. RITER, 3rd,
Vice-President.

Exhibit P—(Continued)

This exhibit is a part of the application for license made by the undersigned this 19th day of March, 1924.

COLUMBIA VALLEY POWER COMPANY,
/s/ By HENRY G. RITER, 3rd,
Vice-President. [2066]

AL
Oreg. (Project No. 57).
Columbia Valley Power Co. June 4, 1924.

The following excerpt is from the minutes of the meeting of the Commission held June 4, 1924:

AUTHORIZATIONS FOR LICENSES

The Executive Secretary presented applications for licenses, with report and recommendation thereon, upon which action was taken as follows:

1. The Executive Secretary stated that the Columbia Valley Power Company had made application for license to construct a water-power development in the Deschutes River, in Jefferson and Deschutes counties, Oregon, located partly on lands within the Warm Springs Indian Reservation; that the proposed project consists of 2 separate units of development, the Pelton unit and the Metolius unit; that the Pelton unit is to consist of an arch masonry dam about 165 feet high and 500 feet long, with a shaft and tunnel spillway with a capacity of 20,000 second feet and creating a reservoir about 8 miles long; that this unit will have a power capa-

city of from 32,000 to 38,000 horsepower, depending on the amount of depletion of water for irrigation in the upper basin; that it is planned to install 3 power units with a total capacity of 51,000 horsepower; that the Metolius unit is to be located just below the junction of the Metolius and Deschutes rivers at the head of the pool created by the Pelton dam; that the height of the Metolius dam will be between 250 and 330 feet, the exact height to be determined by the engineering information to be worked out on the dam site and by the character of the power load which develops; and that the same type of structures will be installed at the Metolius site as are described in the plans for the Pelton site but detailed plans for the development will be submitted for approval prior to beginning its construction. The Executive Secretary further stated that while the applicant has not completed all the investigations at the Metolius site, as required by its preliminary permit, it has drilled two holes at the dam site and made sufficient surface investigations to insure itself that a high dam is feasible; that considerable work is necessary before the exact location and the exact details of such high dam can be determined upon; that the experience of the company constructing the Pelton dam will aid materially in preparing the plans for the Metolius project and to a certain extent the work at both sites can be carried on simultaneously. In view of these circumstances and of the fact that prospective customers for power, before entering into contracts, wish to be assured of a large reserve

supply of power, the Executive Secretary recommended that a license be issued for both units, subject to certain special conditions.

The Commission thereupon took action as follows:

In the matter of the application of the Columbia Valley Power Company of Wilmington, Delaware (project No. 57), for a license for a power project on the Deschutes River and on lands of the United States partly within the Warm Springs Indian Reservation, Jefferson and Deschutes counties, Oregon: Said company having submitted satisfactory evidence of its compliance with the laws of the State of Oregon as required by section 3, sub-section (b), of the Federal water power act and of its ability to finance the construction of the project works proposed; notice of said application having been given and published as required by section 4 of said act; full opportunity having been given for all interested parties to be heard, and no application for said project or in conflict therewith having been filed by any state or municipality; the maps, plans and specifications of the proposed project works having been approved by the Commission; and the Commission finding that said project will be best adapted to a comprehensive scheme of improvement and utilization for the purposes of water-power development and of other beneficial public uses, and that the license will not interfere or be inconsistent with the purpose for which any reservation affected thereby was created or acquired; it was voted that license be issued for a period of fifty (50) years,

subject to the provisions of said act, to the rules and regulations of the Commission pursuant thereto, to the following special conditions, and to such further conditions, if any, as the Secretary of Interior will deem necessary for the adequate protection and utilization of said Warm Springs Indian Reservation.

(1) Before proceeding with the construction of the Metolius unit and of the transmission lines, the licensee shall submit to the Commission plans for said works and shall obtain its approval thereof.

(2) Whenever called upon so to do by the Secretary of the Interior the licensee shall install at the Metolius and Pelton dams sluiceways, or other provisions satisfactory to said Secretary of the Interior, to permit the passage of logs from said Indian reservation past said dams.

(3) The right to use water for power purposes at each of said dams shall, to the extent set forth in an order issued by the State Engineer of Oregon on September 14, 1923, be subordinate to the requirements for water for irrigation from the upper tributaries of said river. [2067]

I, W. Kelly, Chief Engineer of the Federal Power Commission, do hereby certify that the following is a true and correct copy from the record of the proceedings of the Commission in my custody of that portion of the minutes of the sixty-fourth meeting of the Commission, held on the 17th day of July, 1924, which refers to license of the Columbia Valley Power Company (Project No. 57):

"The Chief Engineer presented a list of licenses, amendments, and transfer of license executed since the meeting of June 4, 1924, recommending that the action of the Executive Secretary, or the Chief Engineer in the absence of the Executive Secretary, in issuing these instruments, pursuant to authority in each case given by the Commission, be approved. The Commission thereupon took action as follows:

"In order that the minutes of the Commission may contain record of the formal approval by the Commission of all licenses, amendments and transfer thereof, executed and issued by the Executive Secretary, or the Chief Engineer in the absence of the Executive Secretary, under authority of the Commission's Orders, No. 2 of August 23, 1920, No. 12 of October 6, 1921, and No. 17 of October 22, 1923, it was voted that the following licenses, amendments and transfer of license accepted and/or issued, on the dates respectively named, be and the same are hereby approved by the Commission:

"Licenses.

"Project No. 57
Columbia Valley Power Company
Deschutes River
Warm Springs Indian Reservation
Jefferson and Deschutes counties, Oregon
Authorized June 4, 1924
Accepted by licensee June 17, 1924
Issued June 25, 1924."

* * * * *

Witness my hand and seal of the Federal Power Commission at Washington, D. C., this 11th day of August, 1924.

/s/ WILLIAM KELLY,
Chief Engineer, in the absence of the Executive Secretary. [2068]

June 23, 1924.

I, W. Kelly, Chief Engineer of the Federal Power Commission, do hereby certify that the following is a true and correct copy from the record of the proceedings of the Commission in my custody of that portion of the minutes of the sixty-third meeting of the Commission, held on the 4th day of June, 1924, which refers to the action of the Commission on the application of the Columbia Valley Power Company (Project No. 57).

"In the matter of the application of the Columbia Valley Power Company of Wilmington, Delaware (Project No. 57), for a license for a power project on the Deschutes River and on lands of the United States partly within the Warm Springs Indian Reservation, Jefferson and Deschutes counties, Oregon: said company having submitted satisfactory evidence of its compliance with the laws of the State of Oregon as required by section 9, subsection (b), of the Federal Water Power Act and of its ability to finance the construction of the project works proposed; notice of said application having been given and published as required by section 4 of said act; full opportunity having been

given for all interested parties to be heard, and no application for said project or in conflict therewith having been filed by any State or municipality; the maps, plans and specifications of the proposed project works having been approved by the Commission; and the Commission finding that said project will be best adapted to a comprehensive scheme of improvement and utilization for the purposes of water-power development and of other beneficial public uses, and that the license will not interfere or be inconsistent with the purpose for which any reservation affected thereby was created or acquired; it was voted that license be issued for a period of fifty (50) years, subject to the provisions of said act, to the rules and regulations of the Commission pursuant thereto, to the following special conditions, and to such further condition, if any, as the Secretary of Interior shall deem necessary for the adequate protection and utilization of said Warm Springs Indian Reservation:

"(1) Before proceeding with the construction of the Metolius unit and of the transmission lines, the licensee shall submit to the Commission plans for said works and shall obtain its approval thereof. [2069]

"(2) Whenever called upon so to do by the Secretary of the Interior, the licensee shall install at the Metolius and Pelton dams sluiceways, or other provisions satisfactory to said Secretary of the Interior, to permit the passage of logs from said Indian reservation past said dams.

"(3) The right to use water for power purposes at each of said dams shall, to the extent set forth in an order issued by the State Engineer of Oregon on September 14, 1923, be subordinate to the requirements for water for irrigation from the upper tributaries of said river."

Witness my hand and seal of the Federal Power Commission at Washington, D. C., this 23rd day of June, 1924.

/s/ WILLIAM KELLY,
Chief Engineer, in the absence of the Executive Secretary. [2070]

The Federal Power Commission

LICENSE ON GOVERNMENT LANDS

Project No. 57

Oregon

Columbia Valley Power Company, Inc.

Issued on June 25, 1924

Whereas, by Act of Congress, approved June 10, 1920 (41 Stat., 1063) designated therein as "The Federal Water Power Act" and hereinafter called "the Act," the Federal Power Commission, hereinafter called "the Commission," is authorized and empowered, inter alia, to issue licenses for the purpose of constructing, operating, and maintaining dams, water conduits, reservoirs, power houses, transmission lines, or other project works necessary or convenient for the development, transmission and

utilization of power across, along, from or in any of the navigable waters of the United States, or upon any part of the public lands and reservations of the United States (including the Territories), or for the purpose of utilizing the surplus water or water power from any Government dam; and

Whereas, the Columbia Valley Power Company, hereinafter called "the Licensee," a corporation organized and existing under the laws of the State of Delaware and having office and principal place of business in the city of Wilmington in the State of Delaware has pursuant to a preliminary permit issued on February 6, 1923, [2071] made application in due and proper form to the Commission for a license for a power project designated as Project No. 57 on the records of the Commission, and for authority to construct, maintain and operate, in the vicinity of Madras and Metolius, in the counties of Jefferson and Deschutes, State of Oregon, certain project works, as hereinafter described, necessary or convenient for the development, transmission and utilization of power, and to occupy and use therefor certain lands of the United States, as hereinafter described; and

Whereas, the Licensee has submitted to the Commission satisfactory evidence of its compliance with the laws of the State of Oregon as required by Section 9, sub-section (b) of the Act, and the Commission is satisfied as to the ability of the Licensee to carry out the plans for said project as filed with said application; and

~~Whereas, notice of said application has been given~~ and published by the Commission, as required by Section 4 of the Act; full opportunity has been given to all interested parties to be heard, and no application for said project, or in conflict therewith, has been filed by any State or municipality; ~~and~~

Whereas, the maps, plans and specifications of said project and of said project works, as hereinafter described, have been approved by the Commission, and the Commission finds that said project, as hereinafter described, will be best adapted to a comprehensive scheme of improvement and utilization for the purposes of water-power development and of other beneficial public uses, and that the license will not interfere or be inconsistent with the purpose for which any reservation affected thereby [2072] was created or acquired; and

Whereas, the Licensee, on the 17th day of June, 1924, pursuant to an authorization of its board of directors, a copy of the record thereof being hereto attached, accepted in writing all the terms and conditions of the Act and of this license;

Now, Therefore, the Commission hereby issues this license to the Licensee for the purpose of constructing, operating and maintaining upon the lands of the United States hereinafter designated and described, certain project works necessary or convenient for the development, transmission and utilization of power and constituting a part of the project hereinafter described; said license, including the period thereof, being subject to all the

terms and conditions of the Act and of the rules and regulations of the Commission pursuant thereto as amended and made effective on the 6th day of June, 1921, as though fully set forth herein, which said rules and regulations are attached hereto and made a part hereof, and being subject also to the following express conditions and limitations, to wit:

Article 1. This license is issued for a period of fifty (50) years from the date hereof, and in consideration of such license and the benefits and advantages accruing thereunder to the Licensee it is expressly agreed by the Licensee that the entire project, project area and project works as hereinafter designated and described, whether or not upon lands of the United States, shall be subject to all the terms and conditions of this license, including the terms and conditions of the Act and of the rules and regulations of the Commission pursuant thereto and made a part of this license. [2073]

Article 2. The project covered by and subject to this license is located partly on lands within the Warm Springs Indian Reservation and consists of—

A. All lands, or interests of the Licensee in lands, constituting the project area and inclosed, or the location of which is shown, by the project boundary, such project area and project boundary being more fully shown and described by certain exhibits which accompanied said application for license and which are designated and described as follows:

Exhibit C—Description of project boundaries on four typewritten sheets. Signed by Henry G. Riter, 3rd, on March 19, 1924.

Exhibit J—General map showing entire project. Signed by Henry G. Riter, 3rd, on March 19, 1924.

Exhibit K—Map showing location of dams and project boundaries of reservoirs. Signed by Henry G. Riter, 3rd, on March 19, 1924.

B. All water rights, reference to which is made in certain exhibits which accompanied said application for license and which are designated and described as follows:

Exhibit E—Four typewritten sheets. Signed by Henry G. Riter, 3rd, on March 19, 1924.

An order by the State Engineer of Oregon fixing time within which to apply water under certain filings for water rights. Three typewritten sheets signed by Rhea Luper on September 14, 1923.

C. All project works, consisting of:

A masonry dam with a shaft and tunnel spillway, a reservoir, and power house at the Pelton site, so-called, in said river; a second masonry dam, reservoir and power house at the so-called Metolius site at the junction of the Metolius and Deschutes rivers; and transmission lines from said power houses to the principal distribution points to be established in marketing said power; [2074] the location, nature, and character of which project works of said Pelton unit of development are more fully shown and described by certain exhibits which accompanied said application for license and which are designated and described as follows:

Exhibit L—in three sheets—

1. Pelton Dam Site Deschutes River,—Plan of Dam, Power House and Spillway.

2. Cross Section and Elevation of Dam, Spillway and Power House.

3. Plan and Section of Coffer Dam and River Control.

Signed by Henry G. Riter, 3rd, Vice President, on March 19, 1924.

Exhibit M—General Description of Equipment—3 typewritten sheets. Signed by Henry G. Riter, 3rd, Vice President, on March 19, 1924.

The general location, nature and character of which project works of said Metolius Unit of development are described in said application, detailed plans for this unit and for said transmission lines to be furnished as hereinafter provided for. [2075]

D. All other structures, fixtures, equipment, or facilities used or useful in the maintenance and operation of the project and located upon the project area, including such portable property as may be used and useful in connection with the project or any part thereof, whether located on or off the project area, if and to the extent that the inclusion of such property as a part of the project works is approved or acquiesced in by the Commission; also all other rights, easements, or interests the ownership, use, occupancy or possession of which is necessary or appropriate in the maintenance and operation of the project or appurtenant to the project area.

Article 3. The maps, plans, specifications, and statements designated and described in Article 2 hereof as Exhibits C, E, J, K, L and M, and as Order by State Engineer of Oregon, respectively, and approved by the Executive Secretary for the Commission in accordance with its authorization of June 4, 1924, are hereby made a part of this license, and no substantial change shall hereafter be made in said exhibits, or any of them, until such change shall have been approved by the Commission: Provided, however, that if the Licensee deems it necessary or desirable that said approved maps, plans, specifications and statements, or any of them, be changed there shall be submitted to the Commission for approval amended, supplemental, or additional maps, plans, specifications and statements covering the proposed changes, and upon approval by the Commission of such proposed changes such amended, supplemental or additional maps, plans, specifications and statements shall become a part of this license and shall supersede, in whole or in part, such map, plan, specification, or statement, or part thereof, theretofore made a part of this license as may be specified, respectively, in the order or endorsement of approval. [2076]

Article 4. Said project works shall be constructed in substantial conformity with the approved maps, plans and specifications thereof made a part of this license and designated and described in Articles 2 and 3 hereof or as changed in accordance with the provisions of said Article 3. Except when emergency shall require for the protection of navi-

gation, life, health, or property, no substantial alteration or addition not in conformity with the approved plans shall be made to any dam or other project works constructed under this license without the prior approval of the Commission; and any emergency alteration or addition so made shall thereafter be subject to such modification and change as the Commission shall direct. Minor changes in or divergence from such approved maps, plans, and specifications may be made in the course of construction, if such changes will not result in decrease in efficiency, in material increase in cost, or in impairment of the general scheme of development; but any such minor changes made without the prior approval of the Commission which in its judgment have produced or will produce any of such results shall be subject to such alteration as the Commission may direct.

Article 5. The work of construction under this license, whether or not conducted upon lands of the United States, shall be subject to the inspection and approval of the District Engineer, U. S. Geological Survey, or of such other officer or agent as the Commission may designate, who shall be the authorized representative of the Commission for such purposes. The Licensee shall notify such representative of the date upon which work will begin, and as far in advance thereof as said representative may reasonably specify, and shall notify him promptly in writing of any suspension of construction for a period of more than one week, and of its resumption and completion.

Article 6. Subject to the provisions of Section 13 of the Act, the Licensee shall begin the construction of the Pelton unit of development on or before June 15, 1926, and of the Metolius unit of development on or before June 15, 1930; shall thereafter in good faith and with due diligence prosecute such construction, and shall complete said Pelton unit on or before June 15, 1929, and said Metolius unit on or before June 15, 1934.

Article 7. Before proceeding with the construction of said Metolius unit and of said transmission lines, the Licensee shall submit to the Commission the plans for said project works and obtain its approval thereon. [2077]

Article 8. Upon the completion of the project works, or at such other time as the Commission may direct, the Licensee shall submit to the Commission for approval revised maps, plans, specifications, and statements, in so far as necessary to show any divergence from or variations in the project area as finally located or in the project works as constructed when compared with the area shown and the works designated or described in this license or in the maps, plans, specifications, and statements approved by the Commission under the provisions of Article 3 hereof, together with a statement in writing setting forth the reasons which in the opinion of the Licensee necessitated or justified variations in or divergence from the approved maps, plans, specifications, and statements. Such revised maps, plans, specifications, and statements shall, if and when approved by the Commission, be

made a part of this license and shall, to the extent and in the particulars set forth in the order or endorsement of approval, be substituted for the maps, plans, specifications and statements theretofore approved by the Commission under the provisions of Article 3 hereof. The maps finally approved by the Commission and made a part of this license under the provisions of Article 3 and/or 7 hereof shall show the project area to an adequate scale and the boundary thereof either by legal subdivisions, by metes and bounds survey, or by uniform offsets from centerline survey. Said project area shall include all lands without respect to ownership and whether or not the exact boundaries can be definitely fixed and determined, the use and occupancy of which are or will be valuable or serviceable in the maintenance and operation of the project; on which are located or to which are appurtenant the project works (other than portable property) and the rights, easements, or interests likewise valuable and serviceable; and the ownership or possession, or the right of use and occupancy, of which are subject to acquisition by the United States under the provisions of Section 14 of the Act. Said maps shall show the ownership of each parcel of land in said project area, and with respect to each parcel to which the Licensee has not the fee title, the character of the right of use and occupancy possessed by the Licensee together with the term of such right.

Article 9. For the purpose of determining the stage and flow of the stream or streams from which

water is to be diverted for the operation of said project works and of the amount of water held in and drawn from storage, the Licensee shall, upon the completion of each of said dams, install at each dam and thereafter maintain standard gages in the headwater and tailwater. The Licensee (See page 9) [2078] shall provide for the required readings of such gages ~~and for the adequate rating of said station or stations.~~ The Licensee shall also install and maintain standard meters adequate for the determination of the amount of electric energy generated by said project works. The number, character, and location of gages, meters or other measuring devices, and the method of operation thereof may be altered from time to time if necessary to secure adequate determinations, but such alteration shall not be made except with the approval of the Commission or its authorized representative or upon the specific direction of the Commission. The installment of gages, the ratings of said stream or streams, and the determination of the flow thereof, shall be under the supervision of the District Engineer of the United States Geological Survey having charge of stream gaging operations in the region of said project, and the Licensee shall reimburse the said United States Geological Survey for costs incurred in such supervision or for such part thereof as said District Engineer may deem equitable in the circumstances. The Licensee shall keep accurate and sufficient record of the foregoing determinations to the satisfaction of the Commission, shall make return of such rec-

ords annually, at such time and in such form as the Commission may prescribe.

Article 10. The Licensee shall be liable for all damages occasioned to the property of others by the construction, maintenance or operation of said project works, or of the works appurtenant or accessory thereto, and in no event shall the United States be liable therefor.

Article 11. The Licensee shall be liable for injury to, or destruction of, any buildings, bridges, roads, trails, lands, or other property of the United States, occasioned by the construction, maintenance, or operation of the project works or of the works appurtenant or accessory thereto constructed under the license. Arrangements to meet such liability, either by compensation for such injury or destruction, reconstruction or repair of damaged property, or otherwise, shall be made with the appropriate department or agency of the United States.

Article 12. Timber upon lands of the United States, to be used or destroyed in the construction of the project works, shall be paid for in accordance with the requirements and estimates of the Department concerned.

Article 13. In the construction and maintenance of the project works herein specified, the Licensee shall place and maintain suitable structures to reduce to a reasonable degree the liability of contact between its transmission lines and telegraph, telephone and other signal wires or power transmis-

sion lines not owned by the Licensee, and shall also place and maintain suitable structures and devices to reduce to a reasonable degree the liability of any structures or wires falling and obstructing traffic and endangering life on highways, streets, or railroads. [2079]

Article 14. The Licensee shall, before placing any transmission line into operation, make provision satisfactory to the Commission for avoiding inductive interference between such transmission line and any existing telephone line or lines of the United States, or with any such line or lines for which location has been made and specifications prepared but upon which construction has not begun at the time of erection of said transmission line. Such provisions may be applied either to the transmission line or to the telephone line or to both, as may be determined upon the basis of least cost. The Licensee hereby agrees to assent to such changes in the location or design of any of its transmission lines as may in the opinion of the Commission be necessary or desirable in order to avoid inductive interference with any telephone line or lines of the United States hereafter constructed or proposed to be constructed, provided such changes are made at the expense of the United States.

Article 15. The Licensee ~~shall clear the bottoms and margins of all reservoirs up to high water level~~, shall clear and keep clear to an adequate width lands of the United States along open conduits and along transmission lines, and shall dis-

pose to the satisfaction of said representative of the Commission of all temporary structures, brush, refuse or unused timber on lands of the United States resulting from the clearing of lands or from the construction and maintenance of said project works.

~~Article . The Licensee shall permit the use of~~ any reservoir included in the project for the temporary storage or for the transportation of logs, ties, poles, lumber, or other forest products, and upon demand of the Secretary of Agriculture, shall construct a logway or logways approved by said Secretary and suitable for the passage of such logs, ties, poles, lumber, or other forest products, over or around the dam at any such reservoir without undue hindrance or delay: Provided, That the use of said reservoir or of such logway or logways by owners of such logs, ties, poles, lumber, or other forest products, shall be under such rules and regulations adopted by the Licensee as may be approved ~~by the Secretary of Agriculture.~~

Article 16. The Licensee will interpose no objections to, and will in no way prevent, the use of water for domestic purposes by persons or corporations occupying lands of the United States under permit along or near any stream or body of water, natural or artificial, used by the Licensee in the operation of the project works covered by this license.

Article 17. The Licensee shall allow officers and employees of the United States free and unrestricted

access in, through and across the said project and project works in the performance of their official duties, and shall allow the Forest Service, without charge, to construct or permit to be constructed in, through and across the said project, railroads, chutes, roads, trails, conduits, and other means of transportation not inconsistent with the enjoyment of said project by the Licensee for the purposes herein set forth.

Article 18. The Licensee shall do everything reasonably within its power and shall require its employees, contractors, and employees of contractors to do everything reasonably within their power, both independently and upon request of officers of the Forest Service, or other agents of the United States, to prevent and suppress fires on or near the lands to be occupied under this license. [2080]

Article 19. Whenever called upon so to do by the Secretary of Interior, the Licensee shall install, at the Metolius and Pelton dams, sluiceways, or other provisions satisfactory to said Secretary, to permit the passage of logs from said Indian Reservation by said structures.

Article 20. The right to use water for power purposes at each of said dams shall, to the extent set forth in the next to the last paragraph of said order issued by the State Engineer of Oregon on September 14, 1923, be subordinate to the requirements for water for irrigation from the upper tributaries of said river. [2081]

Article 21. Upon the completion of the construction of said project or of each of the separable parts of said project for which dates of completion are specified in Article 2 hereof the Licensee shall file with the Commission a statement, under oath in duplicate, showing the actual legitimate cost of construction thereof as specified in Regulation 20, Section 2, of said rules and regulations of the Commission. Such statement shall include all proper and legitimate costs, whether incurred prior to date of issuance of license or on and after such date; and the Licensee shall, if requested by the Commission, show separately on such statement, or on a special report, the items and amounts of cost incurred prior to date of issuance of license, with such other details with respect thereto, as the Commission may require. Each and every item of cost included in such statement shall be supported by proper voucher or other evidence; and any such voucher or evidence or certified copy thereof, in support of any item properly includible in said cost shall become a part of the permanent records of said project and shall be kept and retained by the Licensee in the manner required by the Commission.

Article 22. Whenever the Licensee is directly benefited by the construction work of another licensee, a permittee, or of the United States of a storage reservoir or other headwater improvement the Licensee shall reimburse the owner of such reservoir or other improvement for such part

of the annual charges for interest, maintenance and depreciation thereon as the Commission may deem equitable. The proportion of such charges to be paid by the Licensee shall be determined from time to time by the Commission. Whenever such reservoir or other improvement is constructed by the United States the Licensee shall pay similar charges into the Treasury of the United States, upon bills rendered by the Commission.

Article 23. The Licensee shall pay to the United States reasonable annual charges for the purpose of reimbursing the United States for the costs of the administration of the Act and for recompensing it for the use, occupancy and enjoyment of its lands or other property hereinbefore described. The payment by the Licensee of such annual charges for any calendar year shall be made to the United States at the end of the year, or within thirty days thereafter, upon bills rendered or approved by the Commission. Such charges shall be determined in accordance with the provisions of Regulation 14 of said rules and regulations of the Commission, and for the purposes of such determination.

A. The power capacity upon which shall be based the charges for reimbursing the United States for the costs of administration of the Act and for recompensing it for the use, occupancy and enjoyment of lands of the United States, shall, subject to the provisions of Section 3 of said Regulation 14, be taken as 32,200 horsepower for said Pelton

unit of development and as 83,200 horsepower for said Metolius unit of development: [2082]

B. As partial compensation for the use of tribal lands within the Warm Springs Indian Reservation, the Licensee shall furnish, at the site of the Warm Springs Indian Agency for the use of said Indians, at a primary voltage to be agreed upon between the Licensee and the Superintendent of said Agency or to be fixed by the Commission, not to exceed one hundred (100) kilowatts of electric energy at a price of five (5) mills per kilowatt hour, and upon request from said Superintendent shall furnish an additional two hundred (200) kilowatts, such additional power to be paid for by said Indians at a rate not to exceed the lowest rate allowed any other customer for a like amount of power; and, in addition thereto, the Licensee shall, from the date of placing in operation the first unit of the Metolius power plant, pay an annual charge of two thousand dollars ($2,000.00) per annum; Provided, That such charge and such agreement for furnishing power may be readjusted at the end of twenty (20) years after the beginning of operations under this license and at periods of not less than ten (10) years thereafter, upon the basis used in the original determination and upon the facts as found by the Commission at such time of the adjustment. [2083]

Article 24. After the first twenty years of operation of said project under this license, out of surplus earned thereafter, if any, accumulated in

excess of a specified reasonable rate of return upon the actual, legitimate investment of the Licensee in said project, all as defined in and determined by the provisions of Regulation 17 of said rules and regulations of the Commission, the Licensee shall establish and maintain amortization reserves, which reserves shall, in the discretion of the Commission, be held until the termination of the license or be applied from time to time in reduction of the net investment. Such specified rate of return shall, subject to the proviso of Paragraph A, Section 3 of said regulation, be one and one-half (1½) times the weighted average annual interest rate payable on the par value of the bonafide interest-bearing debt of the Licensee actually outstanding, in whole or in part, on account of project property at the beginning of the period of amortization and of each calendar year thereafter; such weighted average annual interest rate being determined as provided in Paragraphs B and C of Section 3 of said Regulation 17: Provided, That, if at the beginning of the period of amortization or of any calendar year thereafter, the outstanding interest-bearing debt of the Licensee on account of the project or projects under license, together with any other works or property operated in connection therewith, is less than 25 per cent of the actual, legitimate investment of the Licensee in said project or projects, then and in such event for the calendar year next following the specified rate of return shall be two (2) times the legal rate of interest in

the State in which the project or major part thereof is located.

Subject to the provisions of Section 6 of said regulation, the following proportions of such surplus earnings shall be paid into and held in such amortization reserves: Of all surplus earnings up to and including 2 per cent upon the actual, legitimate investment, 30 per cent thereof shall be so paid; of all surplus earnings in excess of 2 per cent and not in excess of 4 per cent upon such investment, 50 per cent thereof shall be so paid; of all surplus earnings in excess of 4 per cent and not in excess of 6 per cent, 70 per cent thereof shall be so paid, and of all surplus earnings in excess of 6 per cent, 90 per cent thereof shall be so paid: Provided, That if at the end of any calendar year of the amortization period the Commission shall find that the accumulated earnings of the Licensee during the period of operation, including the first twenty (20) years thereof, have not yielded a fair return upon the actual, legitimate investment in the project or projects under license, the proportion of such surplus earnings for such calendar year and for succeeding calendar years to be paid into such amortization reserves shall be ten (10) per cent thereof until such time as the accumulated earnings of the Licensee represent, in the judgment of the Commission, a fair return upon such investment for such period of operation.

Article 25. No lease of said project or part thereof whereby the lessee is granted the exclusive

occupancy, possession or use of project works for purposes of generating, transmitting or distributing power shall be made without the prior written approval of the Commission; and the Commission may, if in its judgment the situation warrants, require that all the conditions of this license, of the Act, and of said rules and regulations of the [2084] Commission shall be applicable to such lease and to such property so leased to the same extent as if the lessee were the Licensee hereunder: Provided, That the provisions of this article shall not apply to parts of the project or project works which may be used by another jointly with the Licensee under a contract or agreement whereby the Licensee retains the occupancy, possession, and control of the property so used and receives adequate consideration for such joint use, or to leases of land while not required for purposes of generating, transmitting, or distributing power, or to buildings or other property not built or used for said purposes, or to minor parts of the project or project works the leasing of which will not interfere with the usefulness or efficient operation of the project by the Licensee for said purposes.

Article 26. It is hereby understood and agreed that the Licensee, its (heirs) successors and assigns will, during the period of this license, return the possession of all project property covered by this license as issued or as hereafter amended, including the project area, the project works, and all franchises, easements, water rights, and rights of

occupancy and use; and that none of such properties will be sold, transferred, abandoned, or otherwise disposed of without the approval of the Commission. The Licensee further agrees, on behalf of itself ~~(himself)~~, its (~~his~~) successors and assigns, that, in the event said project is taken over by the United States upon the termination of this license, as provided in Section 14 of the Act, or is transferred to a new Licensee under the provisions of Section 15 of the Act, it (~~he~~) will be responsible for and will make good any defect of title to or of right of user in any such project property which is necessary or appropriate or valuable and serviceable in the maintenance and operation of the project, and will pay and discharge or will assume responsibility for payment and discharge of all liens or incumbrances upon said project or project property: Provided, That the provisions of this article are not intended to prevent the abandonment or the retirement from service of structures, equipment, or other project works in connection with replacements thereof when they become obsolete, inadequate, or inefficient for further service due to wear and tear.

Article 27. The Licensee shall abide by such reasonable regulation of the services to be rendered to customers or consumers of power, and of rates and charges of payment therefor, as may from time to time be prescribed by any duly constituted agency of the State in which the service is rendered or the rate charged; and in case of the development,

transmission, distribution, sale or use of power in public service by the Licensee or by its customers engaged in public service within a State which has not authorized and empowered a commission or other agency or agencies within said State to regulate and control the services to be rendered by the Licensee or by its customers engaged in public service, or the rates and charges of payment therefor, or the amount or character of securities to be issued by any of said parties, it is agreed as a condition of this license that jurisdiction is hereby conferred upon the Commission, upon [2085] complaint of any person aggrieved or upon its own initiative, to exercise such regulation and control until such time as the State shall have provided a commission or other authority for such regulation and control: Provided, That the jurisdiction of the Commission shall cease and determine as to each specific matter of regulation and control prescribed in this Article as soon as the State shall have provided a commission or other authority for the regulation and control of that specific matter.

Article 28. With the written consent of the Licensee, the Commission may by order made under its seal, and after the public notice required by Section 6 of the Act, modify, alter, enlarge or omit, in so far as authorized by law, any one or more of the conditions or provisions of this license.

Article 29. The enumeration herein of any rights reserved to the United States or to any State or municipality under the Act, or of any requirement

of the Act or of said rules and regulations of the Commission shall not be construed in any degree as impairing any other rights so reserved by the Act or as limiting the force of any other requirement of said Act or of said regulations.

In Witness Whereof, the Federal Power Commission has caused its name and seal to be hereto signed and affixed by its Chief Engineer, W. Kelly, this 25th day of June, 1924.

FEDERAL POWER COMMISSION,
/s/ By W. KELLY,
Chief Engineer, in the absence of the Executive Secretary. [2086]

In testimony of acceptance of all the terms and conditions of the Federal Water Power Act of June 10, 1920, and of the further conditions imposed in the foregoing license, the Licensee, this seventeenth day of June, 1924, has caused its name and corporate seal to be hereto signed and affixed by Robert O. Hayward its President, pursuant to a resolution of its board of directors, passed on the seventeenth day of June, 1924, a certified copy of the record thereof being hereto attached.

COLUMBIA VALLEY POWER COMPANY,
/s/ By ROBERT O. HAYWARD,
President.

Attest:

GORDON A. HARDWICK,
Secretary. [2087]

Certified Copy of Resolution Adopted by the Board of Directors of Columbia Valley Power Co., Inc., at a meeting held June 17, 1924.

Whereas, this corporation has, pursuant to preliminary permit issued on February 6, 1923, made application, as of March 19, 1924, in due and proper form to the Federal Power Commission for a license for a power project, designated as Project No. 57 on the records of said Federal Power Commission, and for authority to construct, maintain and operate in the vicinity of Madras and Metolius, in the counties of Jefferson and Deschutes, State of Oregon, certain project works necessary or convenient for the development, transmission and utilization of power, and to occupy and use therefor certain lands of the United States; and

Whereas, there has been presented and read to this meeting a form of license proposed for issuance by the Federal Power Commission following the formal acceptance by this corporation of all the terms and conditions of the Federal Water Power Act of June 10, 1920, and of the further conditions imposed in said form of license

Now, Therefore Be It Resolved that the conditions imposed in the form of license presented to this meeting, together with the terms and conditions of the Federal Water Power Act of June 10, 1920, be, and they hereby are accepted, and

Further Resolved that the proper officers of this corporation be, and they hereby are authorized and instructed to evidence this corporation's formal acceptance, in writing, of all the terms and conditions

of the said Act and license by executing and delivering to the Federal Power Commission form of acceptance attached to and made a part of said license.

I, Gordon A. Hardwick, Secretary of Columbia Valley Power Company, Inc., do hereby certify that the foregoing is a true and correct copy of a certain resolution, and preambles thereto, duly adopted by the Board of Directors of said corporation at its meeting held June 17, 1924, and that said meeting was duly called and held as required by law and by the By-Laws of said corporation, and that a quorum was present thereat.

Dated June 17, 1924.

/s/ GORDON A. HARDWICK

FP-16

Instrument No. 3

Federal Power Commission

Certificate of Approval
Project No. 57, Oregon
Columbia Valley Power Company

In accordance with the provisions of Article 7 of the license issued on June 25, 1924, by the Federal Power Commission to the Columbia Valley Power Company for Project No. 57, the Licensee has filed:

Exhibit "J", Supplement No. 2, General Map covering whole transmission route;

Exhibit "K", Supplement No. 2, in five sheets, each entitled "Transmission Line Pelton to Port-

land Route", signed by Henry G. Riter, Vice-President, as received by the Federal Power Commission on October 14, 1925;

Exhibit "M", Supplement No. 2, General description and specifications, in three typewritten sheets, signed by Henry G. Riter, Vice President, as received by the Federal Power Commission, October 14, 1925.

Exhibits are hereby approved and made a part of said license.

Given under my hand and the seal of the Federal Power Commission, this first day of December, 1926, pursuant to Order No. 16 of the Commission.

[Seal] FEDERAL POWER COMMISSION
/s/ By O. C. MERRILL,
Executive Secretary. [2090]

Mr. O. C. Merrill, Philadelphia, Pa.
Executive Secretary,
Federal Power Commission,
Washington, D. C.

Supplement Number Two, requested in connection with License Project Oregon No. 57.

Dear Sir:

In conformity with the provisions in Article 7 of License dated June 25, 1924, of above reference, the Columbia Valley Power Company, the licensee, herewith submits the data required in the license covering a transmission line from the so-called Pelton Damsite to the northeasterly portion of the

city of Portland, Oregon, the line is more definitely described as follows:

Beginning at the power house of the Pelton Damsite, as covered by license granted referred to above, and extending in a generally northwesterly direction toward the northeast corner of the City of Portland, across the Warm Springs Indian Reservation and the Mt. Hood National Forest and private lands; for eventually two independent three conductor transmission lines upon the right-of-way applied for, each line to transmit about sixty thousand horsepower, using 110,000 volts and spacing wires so that 132,000 volts may be employed if desired in the future, the distance across public lands being about 62 miles, all as described hereafter. Beginning in Section 19 Township 10 South Range 13 East, Willamette Base and Meridian, thence in a northwesterly direction across the Warm Springs Indian Reservation and the Mt. Hood National Forest, a distance of about sixty-two miles to the westerly boundary of said forest. The line is a generally straight course from the Pelton Damsite to the northeastern corner of the City limits of Portland, Oregon, and its route is shown on Supplements No. Two Exhibits "J" and "K" herewith. [2091]

The location of the Transmission Line, is as follows:

(a) In the State of Oregon.

(b) In the counties of Jefferson, Wasco and Clackamas.

(c) On lands within the Warm Springs Indian

Reservation and the Mt. Hood National Forest and other public land within the boundaries of the National Forest.

The following Supplements to Exhibits are filed herewith and are hereby made a part of application:

Supplement No. Two Exhibit "J" General map covering whole transmission route.

Supplement No. Two Exhibit "K" Detailed maps.

Supplement No. Two Exhibit "M" General Description.

Supplement No. Two Exhibit "N" Estimate of cost.

Supplement No. Two Exhibit "O" Statement of time desired to begin and to complete construction.

In witness whereof the licensee has caused its name and corporate seal to be hereunto signed and affixed by its Vice President thereunto duly authorized this ninth day of October, 1925.

[Seal] /s/ By HENRY G. RITER, 3rd,
Vice President, Columbia Valley Power Company

Attest:

/s/ GORDON A. HARDWICK,
Secretary.

F.P.C. Received Oct. 14, 1925. [2092]

ADDITIONAL EXHIBIT "M", SUPPLEMENT NO. TWO

General Description and Specifications

The transmission line for which right-of-way is requested is to transmit electricity from the Pelton

Power Site on the Deschutes River to the City of Portland, Oregon. It is planned to construct one line of sufficient capacity to convey 60,000 HP and when the Metolius Power Site is developed as provided in license granted June 25, 1924, to which reference has already been made, to construct another transmission line of about equal capacity along the same right-of-way. For this reason, license for a width of right-of-way four hundred feet (400′) is desired along that portion in which timber grows and a width of two hundred feet (200′) desired from Pelton to the west boundary of Township 7 south Range 11 East, W. B. & M. as shown on sheet No. 2 Supplement No. Two Exhibit "K". West from the west boundary of the Mt. Hood National Forest, Sheet No. 5 Supplement No. Two Exhibit "K", the line will cross no public lands and Columbia Valley Power Company will purchase a private right-of-way.

The line will be three-phase, 60 cycle, 110,000 volts, with 250,000 circular mill copper conductors or equivalent. Suspension type insulators will be used and the three conductors placed in a horizontal plane. The horizontal spacing will be 13′ with the intention of permitting the operating voltage to be increased to 132,000 if this be found necessary in the future.

For miles 0 to 20, where there is no forest growth to cause fire hazards, double cedar poles will be used for supports. These will be spaced averaging fourteen per mile, constructed with double cross-

arms, using steel diagonal ties forming a modified "H" frame. The remainder of the line will have steel towels spaced eight per mile on the average. [2093]

Clearance between conductors and ground will have a minimum of twenty feet calculated under most adverse assumed weather conditions for that portion of line traversing unoccupied regions. Near the Warm Springs Indian Agency and for the portion of line upon private right-of-way, a minimum clearance above ground of twenty-six (26) feet will be provided. Special construction will, of course, be used where crossing other transmission lines, highways, and conditions requiring extra protection.

From Pelton to mile 40, the country is fairly smooth and maintains a comparatively uniform slope so that no extra right-of-way for construction roads is needed. West from Mile 40 on Sheets No. 4 and No. 5 Supplement No. Two Exhibit "K", there is shown by dashed line the approximate position for a construction road designed to have grades of about ten per cent maximum. The exact location of this construction road may be altered to meet conditions as they are found to exist when work is begun. Consultation with the Portland office of the United States Forestry Service indicates that that service may wish to cooperate with the licensee to construct roads located to the advantage of the Forest Service which will also be usable for the construction of this transmission line. Working out such a plan may modify the position of roads.

An outdoor substation of 45,000 K. V. A. capacity is included in the estimate of cost.

The land sub-divisions shown on sheets No. 1 and No. 2 Supplement No. Two Exhibit "K" with shaded borders, represent areas allotted to Indians in severalty upon the Warm Springs Indian Reservation as of April 1st, 1925. Columbia Valley Power Company is prepared to agree to whatever conditions the United States Indian Bureau may wish to impose as to rights-of-way [2094] across such allotted lands, whether these are held in fee or are still held in trust for the Indians.

The boundaries marked "Edge of Timber" on the sheets of Supplement No. Two Exhibit "K" represent what are understood to include timber of commercial value. Areas not included within these boundaries are either barren or burned or small second growth, or over-ripe timber not considered as being saleable. The classification is however not exhaustive and there are small stretches not excluded from the forested areas upon which no valuable timber exists.

This addition to Exhibit "M" is a part of the application for supplement to license made by the undersigned this ninth day of October 1925.

COLUMBIA VALLEY POWER COMPANY,

/s/ By HENRY G. RITER, 3rd,
Vice President.

F.P.C. Received Oct. 14, 1925. [2095]

ADDITIONAL EXHIBIT "N", SUPPLEMENT NO. TWO

Estimate of Cost

The following is the estimated cost of the various items of the transmission line for which approval is requested. This represents the total amount necessary to construct one line from Pelton to Portland, as shown on Supplement No. Two Exhibit "J".

560 steel towers erected—2500 tons at $180	$ 450,000
280 double cedar pole frames erected at $60	16,800
2700 insulator strings, in place at $30	81,000
270 miles of conductors (strung)	300,000
60 miles of clearing	175,000
Road Building	125,000
Concrete footings for towers and poles	45,000
Foundation bolts, misc. hardware, etc.	25,000
Tractors, trucks and equipment	40,000
Rebuild telephone lines and other structures damaged	25,000
Private right-of-way—625 acres at $160	100,000
	$1,382,800
Engineering and supervision	100,000
	1,482,800
Interest during construction	45,000
Total	$1,527,800
Substation 45,000 K. V. A.	326,400
Grand Total	$1,854,200

This addition to Exhibit "N" is a part of the application for supplement to license made by the undersigned this ninth day of October, 1925.

COLUMBIA VALLEY POWER COMPANY,
/s/ By HENRY G. RITER, 3rd,
Vice President. [2096]

ADDITIONAL EXHIBIT "O", SUPPLEMENT NO. TWO

Statement of Time Desired to Begin and to Complete Construction.

It is requested that two years from date of the approval requested be allowed for beginning construction of the transmission line, and that eighteen months from the time at which work shall be begun be allowed for completing the construction of the transmission line.

This addition to Exhibit "O" is a part of the application for supplement to license made by the undersigned this ninth day of October, 1925.

COLUMBIA VALLEY POWER COMPANY,
/s/ By HENRY G. RITER, 3rd,
Vice President.

* * * * * [2097]

AL
Oreg. (No. 57).
Columbia Valley Power Co. June 23, 1926.

The following excerpt is from the minutes of the meeting of the Commission held June 23, 1926:

Amendment of License

1. The Executive Secretary made the following statement: The Columbia Valley Power Company of Wilmington, Delaware, has made application for an amendment to the license for project No. 57, issued under date of June 25, 1924, by extending for two years the dates for beginning and completing both the Pelton and Metolius sites and to include a construction and operation railroad. The licensee represents that there does not exist at the present time a market for the power which is to be developed at these sites, and that to begin and complete development as required by the license would result in an economic loss due to carrying charges on the investment. The railroad appears necessary to the project. It is recommended that the Commission authorize the amendment of license requested.

The Commission thereupon took action as follows:

In the matter of the application of the Columbia Valley Power Company of Wilmington, Delaware, for amendment of license for Project No. 57 on Deschutes River involving, in part, lands within the Warm Springs Indian Reservation, in Jefferson and Deschutes Counties, Oregon, by extending the periods of beginning and completing construction as

set forth in article 6 of said license and by adding to the project a construction and operation railroad: It appearing that such extension and addition are reasonable and necessary and will not be incompatible with the public interest, it was voted that said license be amended so as to extend the periods for beginning and completing the Pelton site to June 15, 1928, and to June 15, 1932, respectively, and the periods for beginning and completing the Metolius site to June 15, 1931, and to June 15, 1936, respectively, and that the railroad be included in the project. It was further voted that the Executive Secretary be authorized to execute an amendment to said license evidencing such action.

Copy to C. J. Green at San Francisco, July 21, 1926. M.K. [2104]

AMENDMENT OF NO. 1 OF LICENSE

Project No. 57, Oregon
Columbia Valley Power Company

I, Glen E. Edgerton, Chief Engineer of the Federal Power Commission, do hereby certify that the following is a true and correct copy, from the record of the proceedings of the Commission in my custody, of that portion of the minutes of the eighty-second meeting of the Commission, held on the nineteenth day of August, 1926, which refers to the amendment of the license for project No. 57—Columbia Valley Power Company:

"The Chief Engineer presented the following list of licenses and amendments which have been ex-

ecuted since the meeting of July 6, 1926, and recommended that the action of the Executive Secretary or of the Chief Engineer, in the absence of the Executive Secretary, in issuing these instruments, pursuant to authority in each case given by the Commission, be approved:

"The Commission thereupon took action as follows:

"In order that the minutes of the Commission may contain record of the formal approval by the Commission of the licenses and amendments executed and issued by the Executive Secretary or the Chief Engineer, in the absence of the Executive Secretary, under authority of the Commission's Orders Nos. 2 and 12, it was voted that the following licenses and amendments of licenses accepted and/or issued, on the dates respectively named, be and the same are hereby approved by the Commission:

* * * * *

"Amendments of licenses:

Project No. 57.

Columbia Valley Power Company
Deschutes River
Warm Springs Indian Reservation
Jefferson and Deschutes Counties, Oregon
Original license issued June 6, 1924
Amendment No. 1 authorized June 6, 1926
Accepted by licensee July 15, 1926
Issued July 26, 1926."

* * * * *

Witness my hand and the seal of the Federal Power Commission at Washington, D. C., this seventeenth day of September, 1926.

[Seal] /s/ GLEN E. EDGERTON,
Chief Engineer, in the absence of the Executive Secretary. [2106]

I, Glen E. Edgerton, Chief Engineer of the Federal Power Commission, do hereby certify that the following is a true and correct copy, from the record of the proceedings of the Commission in my custody, of that portion of the minutes of the eightieth meeting of the Commission, held on the twenty-third day of June, 1926, which refers to the action taken on the application of the Columbia Valley Power Company:

"In the matter of the application of the Columbia Valley Power Company of Wilmington, Delaware, for amendment of license for project No. 57 on Deschutes River involving, in part, lands within the Warm Springs Indian Reservation, in Jefferson and Deschutes Counties, Oregon, by extending the periods of beginning and completing construction as set forth in article 6 of said license, and by adding to the project a construction and operation railroad: It appearing that such extension and addition are reasonable and necessary and will not be incompatible with the public interest, it was voted that said license be amended so as to extend the periods for beginning and completing work at the Pelton site to June 15, 1928, and to June 15, 1932, respectively, and the periods for beginning and

completing work at the Metolius site to June 15, 1931, and to June 15, 1936, respectively; and that the railroad be included in the project. It was further voted that the Executive Secretary be authorized to execute an amendment to said license evidencing such action."

Witness my hand and the seal of the Federal Power Commission at Washington, D. C., this twenty-sixth day of July, 1926.

[Seal] s/ GLEN E. EDGERTON,
Chief Engineer, in the absence of the Executive Secretary. [2107]

AMENDMENT No. 1 OF LICENSE

Whereas, under authority of the Federal Water Power Act of June 10, 1920 (41 Stat., 1063), the Federal Power Commission, hereinafter called "the Commission," on June 25, 1924, issued to the Columbia Valley Power Company, a corporation existing under the laws of the State of Delaware, hereinafter called "the Licensee," a license for a power project designated as Project No. 57 on the records of the Commission; and

Whereas, the Licensee made application, dated March 17, 1926, to the Commission to amend said license by extending the periods in which to begin and complete construction; and

Whereas, the Licensee made application, dated October 8, 1925, to the Commission to amend said license by adding to the project works a construction railroad; and

Whereas, upon due consideration of said applications, it appears that the amendments requested are reasonable and necessary and will not be incompatible with the public interest, and that, under the decision of the Commission of April 30, 1923, the amendments desired do not constitute an alteration of the license within the meaning of section 6 of said Act so as to require the ninety days' public notice prescribed therein; and [2108]

Whereas, the Licensee, on the fifteenth day of July, 1926, pursuant to an authorization of its board of directors, a copy of the record thereof being hereto attached, accepted, in writing, all the terms and conditions of this instrument:

Now, therefore, the license issued to the Licensee, as aforesaid, is hereby amended as follows, upon the express condition, however, that such amendment shall not operate to alter or amend said license in any other respect than as herein specified, and shall not in any way constitute a waiver of any other part, provision or condition of said license:

Paragraph I. Article 6 of said license is amended by eliminating therefrom the dates of June 15, 1926, June 15, 1930, June 15, 1929, and June 15, 1934; and substituting in lieu thereof June 15, 1928, June 15, 1932, June 15, 1931, and June 15, 1936, respectively, so that said Article 6 shall read as follows:

"Article 6. Subject to the provisions of section 13 of the Act, the Licensee shall begin construction of the Pelton unit of the development on or before June 15, 1928, and of the Metolius unit of the development on or before June 15, 1932, shall thereafter,

in good faith and with due diligence, prosecute such construction, and shall complete said Pelton unit on or before June 15, 1931, and said Metolius unit on or before June 15, 1936."

Paragraph II. Article 2 of said license is amended by including under paragraph "A" thereof the following exhibit and statement:

Exhibit K, Supplement No. 1. Entitled "Application for Approval of Columbia Valley Power Company Railroad Right of Way". Signed by Henery G. Riter, 3rd, Vice President, on October 8, 1925.

"The lands indicated on said Exhibit K, Supplement No. 1 (which is a general map) are shown in detail on Sheets No. I, No. II, and No. III, designated V-Ore-3, V-Ore-3, V-Ore-3, [2109] re-

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spectively, on "Right of Way and Track Map, Oregon Trunk Railway", dated June 30, 1916, tracings of which maps are on file in the General Land Office, at Washington, in connection with the Oregon Trunk Railway's original application for right of way";

So that said Article 2, paragraph "A", shall read as follows:

"A. All lands, or interests of the Licensee in land, constituting the project area and inclosed, or the location of which is shown, by the project boundary, such project area and project boundary being more fully shown and described by certain

exhibits which accompanied said application for license and which are designated and described as follows:

Exhibit C. Description of project boundaries on four typewritten sheets. Signed by Henry G. Riter, 3rd, on March 19, 1924.

Exhibit J. General map showing entire project. Signed by Henry G. Riter, 3rd, on March 19, 1924.

Exhibit K. Map showing location of dams and project boundaries of reservoirs. Signed by Henry G. Riter, 3rd, on March 19, 1924;

Exhibit K, Supplement No. 1. Entitled 'Application for Approval of Columbia Valley Power Company Railroad Right of Way'. Signed by Henry G. Riter, 3rd, Vice President, on October 8, 1925.

The lands indicated on said Exhibit K, Supplement No. 1 (which is a general map) are shown in detail on Sheets No. I, No. II, and No. III, designated V-Ore-3, V-Ore-3, V-Ore-3, respectively, on

5 6 7

'Right of Way and Track Map, Oregon Trunk Railway', dated June 30, 1916, tracings of which maps are on file in the General Land Office, at Washington, in connection with the Oregon Trunk Railway's original application for right of way."

In witness whereof, the Federal Power Commission has caused its name and seal to be hereto signed and affixed by Glen E. Edgerton, its Chief Engineer, this twenty-sixth day of July, 1926, [2110] pursuant to authority given by the Commission at its

meeting of June 23, 1926, a certified copy of the record thereof being hereto attached.

[Seal] FEDERAL POWER COMMISSION,
/s/ By GLEN E. EDGERTON,
Chief Engineer, in the absence of the Executive Secretary. [2111]

In testimony of the acceptance of all the terms and conditions of the foregoing instrument, the Licensee, this fifteenth day of July, 1926, has caused its name and corporate seal to be hereto signed and affixed by Henry G. Riter, 3rd, its Vice President, pursuant to a resolution of its board of directors passed on the fourteenth day of July, 1926, a certified copy of the record thereof being hereto attached.

[Seal] COLUMBIA VALLEY POWER COMPANY,
/s/ By HENRY G. RITER, 3rd,
Vice President.

Attest:

/s/ GORDON A. HARDWICK,
Secretary. [2112]

Certified Copy of Resolution Adopted by the Board of Directors of Columbia Valley Power Company, Inc., at a Meeting Held July 14, 1926.

"Whereas, under date of March 17, 1926, this corporation made application to the Federal Power Commission to amend its license, granted on June 25, 1924, by the Federal Power Commission, for a power project designated as Project No. 57 on the records of said Commission; and

Whereas, there has been presented and read to this meeting a draft of an instrument, designated as Amendment No. 1, of this corporation's license, proposed for issuance by the Federal Power Commission following the formal acceptance by this corporation of all the terms and conditions set forth therein,

Now, Therefore, Be It Resolved that the terms and conditions of said Amendment No. 1 of this corporation's license, as presented to this meeting, be, and they hereby are accepted; and

Further Resolved that the proper officers of this corporation be, and they hereby are authorized and instructed to evidence the corporation's formal acceptance, in writing, of all the terms and conditions of the said Amendment No. 1 of its license by executing and delivering to the Federal Power Commission form of acceptance attached to and made a part of said Amendment No. 1.

I, Gordon A. Hardwick, Secretary of Columbia Valley Power Company, Inc., do hereby certify that the foregoing is a true and correct copy of a certain resolution, and preamble thereto, duly adopted by the Board of Directors of said corporation at its meeting held July 14, 1926, and that said meeting was duly called and held as required by law and by the By-Laws of said corporation, and that a quorum was present thereat. Dated July 15, 1926. [2113]

/s/ GORDON A. HARDWICK.

Columbia Valley Power Company, Inc.
Office of the Secretary and Treasurer
1207 Stephen Girard Building
Philadelphia

APPLICATION FOR AMENDMENT OF LICENSE

1. The Columbia Valley Power Company, Inc., a corporation organized and existing under and by virtue of the laws of the State of Delaware, and having its office and principal place of business at Wilmington, in the State of Delaware, to whom a license for a power project designated as Project No. 57 was issued by the Federal Power Commission on the twenty-fifth day of June, 1924, hereby makes application to said Commission for an amendment of said license in the manner and to the extent described herein.

2. An extension in the time required for starting construction work on the Pelton Development from June 15, 1926, to June 15, 1928.

An extension in the time required for completing the Pelton Project from June 15, 1929, to June 15, 1931.

An extension in the time required for starting construction work on the Metolius Development from June 15, 1930, to June 15, 1932.

An extension in the time required for completing the Metolius Project from June 15, 1934, to June 15, 1936.

3. The proposed changes are necessary and desirable for the following reasons:

Since the license was granted on June 25, 1924, your licensee has proceeded diligently toward the perfection of its [2114] plans and rights and with negotiations for the sale of power.

It has purchased the abandoned right of way of the Spokane, Seattle and Portland Railway from the Pelton site to the Village of Metolius, a distance of about 11 miles, for the sum of $1.00 and other valuable considerations which will not impose any financial burden on the Columbia Valley Power Company. It has also purchased the telephone line on this right of way for the sum of $664.00. It has further entered into commitments with private owners for perfecting its title to said right of way, involving the sum of $2,500. It is maintaining these structures in repair.

Your licensee has also completed extensive surveys and perfected its plans for transmission between the Pelton Site and Portland and has filed with your Commission, location of the right of way for this transmission line thru the Warm Springs Indian Reservation and the National Forest to a point about 60 miles from the Pelton Site.

The Columbia Valley Power Company has also been in constant negotiation with power companies and with various industrial interests for the sale of power from this development. The negotiations with the power companies were broken off about a year ago due to the purchase of the Northwestern Electric Company by the Pacific Power and Light Company, a subsidiary of the Electric Bond and Share Company, but were recently resumed on the

initiative of the Electric Bond and Share Company and are being actively carried on with representatives of that o ganization, acting jointly for all the power companies in Portland. These representatives have stated that if the second and third steps of the Oak Grove project of the Portland Electric Power Company are completed they will not [2115] be ready to take the output of the Pelton Development much before 1930 unless the load in Portland should be stimulated by new industrial enterprises. There would be great danger, therefore, that the simultaneous development of the remainder of the Oak Grove project and of the Columbia Valley Power Company's Pelton Site would result in a large power surplus during the years 1928 to 1930 in the public utility market and consequent economic waste, unless present negotiations looking toward the substitution of our Pelton project for the Oak Grove project should be successful.

The Columbia Valley Power Company has also conducted extensive negotiations with various existing or projected industrial enterprises with a view to selling power directly to them in Portland or vicinity and some of these negotiations are approaching a definite stage. The time required for financing and establishing these industrial enterprises is such that they give no present promise of being definitely organized in time to permit starting work on the Pelton Development within the present time limit.

Your licensee is also in active negotiation with a strong group of financial interests already well

established in the territory and contemplating expansion. They have approached the Columbia Valley Power Company with a view to purchasing all the power covered by the present license and negotiations are in active progress.

The latter two negotiations both give promise of economic disposition of the power in the near future in case the requirements of the utilities will not permit the absorption of the output of the Pelton Development by them within a reasonable time.

In connection with these negotiations, your licensee has surveyed the pond and has made an extended study of the appropriate [2116] installation at this plant for various different classes of customers and has redesigned the plant for three different installations, i.e., 57,000 HP, 80,000 HP. and 100,000 HP. New estimates of cost have been prepared for each of these installations and schedules of power prices have been prepared on the basis of these varying installations and submitted to prospective customers. The financial plans of the Columbia Valley Power Company have also been perfected in conference with its bankers and have been revised in detail from time to time on the basis of the power negotiations.

The total costs to the Columbia Valley Power Company during the year 1925 for purchase of property, engineering, and negotiations with customers and bankers have been approximately $46,000, of which approximately $19,000 represent cash expenditures and approximately $27,000 represent outstanding commitments. The total expenditures to

December 31, 1925, made by your licensee in connection with this project have been approximately $307,000, of which approximately $132,000 represent cash expenditures and approximately $175,000 represent outstanding commitments. An audit of the books now in progress will be completed during the coming week and statement of exact details will follow immediately.

Due to the exceptionally favorable character of the site and the exceptionally favorable flow of the Deschutes River, your licensee has been able to offer this power for sale at a price which is believed to be unprecedented during the post-war period and which should result in a very marked saving to the ultimate consumer over present power prices prevailing in that district. It is apparent that a premature development of the Pelton Site before the market is ready to absorb a very considerable portion of the output would result in economic loss on account of interest [2117] and depreciation charges on idle equipment, which would be reflected in increased costs to the ultimate consumer. Premature development and consequent economic loss would also be inimical to the financial program of your licensee due to the large capital expenditures already made in connection with this project and the further great capital expenditures required for its completion. A partial development of the Pelton Site to meet the present needs of the market would have the same economic effect and would, in addition, make more difficult and expensive the ultimate development at a later date.

Your licensee submits that the full two years' term permissible under the law is necessary in order to permit it to dispose of the power to the best advantage both to it and to the public and to permit it to economically finance the large expenditures involved in such a way as to protect both its own interests and those of the prospective investors.

In Witness Whereof the applicant has caused its name and corporate seal to be hereunto signed and affixed by Henry G. Riter, 3rd, its Vice President, thereunto duly authorized, this seventeenth day of March, 1926.

[Seal] COLUMBIA VALLEY POWER COMPANY, INC.,
/s/ HENRY G. RITER, 3rd,
Vice President.

Attest:
/s/ GORDON A. HARDWICK,
Secretary

F.P.C. Received Mar. 19, 1926. [2118]

Mr. O. C. Merrill, Philadelphia, Pa.
Executive Secretary,
Federal Power Commission,
Washington, D. C.

Supplement Number One, Requested in Connection with License Project Oregon No. 57.

Dear Sir:

Referring to license granted the Columbia Valley Power Company, dated June 25, 1924 (Oregon No. 57), it is hereby requested that this license be

supplemented to include right to the use of certain public lands for the operation of a railroad by the undersigned Columbia Valley Power Company in connection with the construction, operation and maintenance of the structures and works covered by the above named license. The location and extent of the right-of-way desired are more completely described in maps and other data herewith.

The location of the railroad right-of-way which it is requested be included in license is as follows:

(a) In the State of Oregon,

(b) In the County of Jefferson,

(c) On public lands not in any reservations.

The railroad is needed to ship machinery and material to the Pelton and Metolius damsites, from the present closest accessible shipping point on any railroad, which is at Metolius, Oregon.

The following supplemental and additional exhibits are filed herewith and are hereby made a part of this application for modification of original license:

Supplement No. One to Exhibit "K" Detailed Map.

Supplement No. One to Exhibit "M" General Description.

Supplement No. One to Exhibit "N" Estimate of Cost.

Supplement No. One to Exhibit "O" Statement of time desired to begin and to complete construction.

The title to the roadbed, ties and structures acquired from the Oregon Trunk Railway is evidenced by the Certified Copy [2119] herewith of Agree-

ment between the Oregon Trunk Railway and the Columbia Valley Power Company, and the title to the private lands over which the roadbed passes is evidenced by Certified Copy of Deed from the Oregon Trunk Railway to the Columbia Valley Power Company conveying title to such lands.

It is probable that not only will the material and machinery for the Pelton Damsite development be shipped over this railroad, but it may also be found economical to ship the much larger quantity of material and equipment involved in the construction of the Metolius Dam over this railroad. For the Metolius work, the material would be transferred from railroad cars to barges floating on the Pelton Reservoir, and these be towed the seven miles to the head of the Pelton reservoir, which is terminated by the Metolius Damsite. If this latter plan is adopted, the construction use of the railroad will be extended over several years, even if it be used only for construction purposes. However, it would be highly advantageous to have a railroad connection at all times for the proper operation and maintenance of the Pelton Power Development, so that the supplementary license for the use of the public lands requested should extend for fifty years, the same period as that granted for the development of power under the license now held by the Columbia Valley Power Company.

Blue prints showing the lands needed, on the scale of 1" - 400', from the tracings prepared by the Oregon Trunk Railway, show the alignment as it existed at the time of regular operation subsequent

to the final completion of construction, and are submitted herewith. The Oregon Trunk Railway filed its application for right-of-way with the United States Land Office in conformity with the laws and regulations applying to the granting of such right-of-way, and these filing maps covering [2120] the portion of land involved, were approved by the General Land Office July 21, 1908. Reference is made hereby to such approved filing maps, if further information than that submitted is required.

In Witness Whereof, the Licensee has caused its name and corporate seal to be hereunto signed and affixed by its Vice President thereunto duly authorized this eighth day of October, 1925.

[Seal] /s/ By HENRY G. RITER, 3rd,
Vice President, Columbia
Valley Power Company.

Attest:
/s/ GORDON A. HARDWICK,
Secretary.

F.P.C. Received Oct. 14, 1925. [2121]

ADDITIONAL EXHIBIT "M", SUPPLEMENT NO. ONE

General Description

The Columbia Valley Power Company has purchased the roadbed with ties, trestles, bridges, tunnels, and such title to the right-of-way as the Oregon Trunk Railway possessed prior to its abandonment of a certain portion of its line in order that the Oregon Trunk Railway might lessen its ex-

pense of operation by joint use of the track with the Oregon, Washington Railway & Navigation Company's line. The portion of the roadbed which the Columbia Valley Power Company has purchased extends from its junction with the present operated line of the O. W. R. & N., a short distance north of the station at Metolius, Oregon, a distance of about twelve miles, to a point about 2000 feet beyond the location of the Pelton Damsite. The telephone line and one wire circuit thereon from this last point to a connection with the telephone system of the Pacific Telephone & Telegraph Company in Madras, Oregon, was also purchased. This telephone line is located upon the right-of-way covered by the map of Supplement No. One to Exhibit "K" herewith.

To make a usable railroad, it is only necessary for the Columbia Valley Power Company to lay rails on the ties, replacing the rails which the Oregon Trunk Railway removed at the time it abandoned this track. The track was built originally with 90 lb. rails, was well ballasted, grades and alignment and all structures were designed for heavy main line railroad operation. It is therefore more than adequate for operation of a construction railroad for handling materials and equipment, although the Columbia Valley Power Company expects to lay rails not heavier than 60 lbs. per yard.

The railroad immediately opposite the Pelton Damsite is about 225 feet above the water surface of the reservoir to be [2122] formed by the Pelton Dam, and about 600 feet horizontally distant from

the closest point of the dam and its structures. It is planned to construct an inclined railway by means of which standard freight cars can be lowered to the damsite and only one transfer of machinery and materials will be involved.

The use of the railroad will be a great saving over hauling on a highway, as the construction of the highway would be only at a very great expense, due to the rugged rocky formation of the Deschutes River canyon at this point, involving great expense in transporting material over this and in maintaining it even in a usable condition.

The width of the right-of-way desired is 200 feet, being 100 feet on each side of the center line of the railroad. This is the width that the Oregon Trunk Railway requested for its right-of-way in its application to the Interior Department and is the width upon which all structures and operations have been based.

This addition to Exhibit "M" is a part of the application for supplement to license made by the undersigned this eighth day of October, 1925.

COLUMBIA VALLEY POWER COMPANY,

/s/ By HENRY G. RITER, 3rd,
Vice President.

ADDITIONAL EXHIBIT "N", SUPPLEMENT NO. ONE

Estimate of Cost

The following is an estimate of the cost of preparing the present roadbed for operation of trains

and for connection to site of construction: [2123]

Rails—1300 tons at $45.00	$ 58,500
Plates, bolts, etc.	5,000
Renewing defective ties, repairing structures, etc.	5,000
Laying rails—12 miles at $1000	12,000
Incline Railway connection to Damsite	10,000
Equipment for operation	50,000
Telephone line, etc.	2,000
Total	$142,500

This addition to Exhibit "N" is a part of the application for supplement to license made by the undersigned this eighth day of October, 1925.

COLUMBIA VALLEY POWER COMPANY,

/s/ By HENRY G. RITER, 3rd,
Vice President.

ADDITIONAL EXHIBIT "O", SUPPLEMENT NO. ONE

Statement of Time Desired to Begin and to Complete Construction

It is requested that one year from the date of supplement of license requested be allowed for the beginning of the construction of this railroad, and that eight months time be allowed for the completion of the work, that is, twenty months from the date of the approval of supplement requested be

allowed for the completion of the work described herein.

This addition to Exhibit "C" is a part of the application for supplement to license made by the undersigned this eighth day of October, 1925.

COLUMBIA VALLEY POWER COMPANY,
/s/ By HENRY G. RITER, 3rd,
Vice President.

* * * * *

F.P.C. Received Oct. 14, 1925. [2124]

(Copy)

I, F. E. Bonner, Executive Secretary of the Federal Power Commission, do hereby certify that the following is a true copy of that part of the minutes of the one hundred eighth meeting of the Commission, held on the twenty-fifth day of November, 1930, which refers to the action taken by the Commission relative to the license for project No. 57:

"In the matter of the failure of the Columbia Valley Power Company (Inc.), licensee for project No. 57, to prosecute construction with a diligence commensurate with the completion of the Pelton Dam as required by the terms of the license, it was voted that no action be taken at present, but that the Executive Secretary shall notify the licensee unless construction work be under way on a large scale before June 15, 1931, no application for extension of the date of completion will be considered and proceedings will be instituted toward the revo-

cation of its license in accordance with the provisions of section 13 of the Federal Water Power Act."

Witness my hand and the seal of the Federal Power Commission at Washington, D. C., this eighteenth day of December, 1930.

F. E. BONNER,
Executive Secretary. [2126]

AL-57-Oreg. November 25, 1930.
Columbia Valley Power Co. (Inc.)

Miscellaneous

The following excerpt is from the Minutes of the meeting of the Commission held November 25, 1930:

Miscellaneous

1. The Executive Secretary stated that Columbia Valley Power Company (Inc.) was granted a license on June 25, 1924, for a proposed power development on Deschutes River, involving the construction of the so-called Pelton and Metolius dams, with adjoining power houses and appurtenant structures. The license, as amended, required that construction on the Pelton unit be commenced on or before June 15, 1928, and completed on or before June 15, 1931. According to reports submitted to the Commission from the district engineer of the Geological Survey, who acts as field representative of the Commission, construction was commenced on June 10, 1928, and has since been continued on such a small scale that completion of the project as scheduled is impossible. The licensee reports that it has

expended since the date of issuance of license approximately $139,800, of which the cost of actual construction on the dam has amounted to about $32,300. The company has been a pioneer in the development of the power resources of Deschutes River and has been endeavoring to secure a market by the establishment of new industries in the vicinity of the project rather than through existing distribution channels. The district engineer of the Geological Survey recommends that no action be taken at the present time to enforce a more adequate compliance with the requirements of the license, but that the licensee be notified that unless construction work on a larger scale is under way before June 15, 1931, proceedings will be instituted to revoke the license. The Executive Secretary recommended that the procedure suggested by the district engineer of the Geological Survey be followed.

The Commission thereupon took action as follows:

In the matter of the failure of the Columbia Valley Power Company (Inc.), licensee for project No. 57, to prosecute construction with a diligence commensurate with the completion of the Pelton Dam as required by the terms of the license, it was voted that no action be taken at present, but that the Executive Secretary shall notify the licensee that unless construction work be under way on a large scale before June 15, 1931, no application for extension of the date of completion will be considered and proceedings will be instituted toward the revo-

cation of its license in accordance with the provisions of section 13 of the Federal Water Power Act. [2127]

The following is an extract from the minutes of a meeting of the Federal Power Commission held on April 28, 1933:

Request to Attorney General to institute revocation proceedings for violation of license terms (Project No. 57).

The following order was approved and adopted:

Whereas, a certified copy of the Commission's order of February 13, 1933, was served by registered mail on the Columbia Valley Power Company, Inc., licensee of project No. 57, on February 16, 1933, and a receipt for said certified copy is in the Commission's files; and

Whereas, said order of February 13, 1933, provided:

"That said licensee be notified that before the Commission, in compliance with section 6 of the Federal Water Power Act, advertises the application for amendment of license, all the charges due the United States must be paid, and that failure to pay before April 17, 1933, will be made grounds for beginning proceedings for forfeiture of license"; and

Whereas, the Columbia Valley Power Company, Inc., did not pay the annual charges due the United States before April 17, 1933, as required in said order, and has not since paid said charges, and has made no response to said order.

Now, therefore, the Commission finds:

That the Columbia Valley Power Company, Inc., is in default under the terms of the license for project No. 57, having violated the terms of said license with respect to the payment of annual charges; and

It is ordered:

That the Attorney General be and he is hereby requested to institute proceedings under section 26 of the Federal Water Power Act for the purpose of revoking the said license for project No. 57 for said violation of its terms; and for the purpose of collecting annual charges still due the United States.

/s/ JOSEPH P. McCUEN,
Secretary. [2128]

Federal Power Commission

Frank R. McNinch, Chairman; Basil Manley, Vice Chairman; Herbert J. Drane, Claude L. Draper, Clyde L. Seavey, Commissioners.

Request to Attorney General to institute revocation proceedings for violation of license terms. (Project No. 57).

The following order was approved and adopted:

Whereas, a certified copy of the Commission's order of February 13, 1933, was served by registered mail on the Columbia Valley Power Company, Inc., licensee of project No. 57, on February 16, 1933, and a receipt for said certified copy is in the Commission's files; and

Whereas, said order of February 13, 1933, provided:

"That said licensee be notified that before the Commission, in compliance with section 6 of the Federal Water Power Act, advertises the application for amendment of license, all the charges due the United States must be paid, and that failure to pay before April 17, 1933, will be made grounds for beginning proceedings for forfeiture of license"; and

Whereas, the Columbia Valley Power Company, Inc., did not pay the annual charges due the United States before April 17, 1933, as required in said order, and has not since paid said charges, and has made no response to said order.

Now, therefore, the Commission finds:

That the Columbia Valley Power Company, Inc., is in default under the terms of the license for project No. 57, having violated the terms of said license with respect to the payment of annual charges; and

It is ordered:

That the Attorney General be and he is hereby requested to institute proceedings under section 26 of the Federal Water Power Act [2129] for the purpose of revoking the said license for project No. 57 for said violation of its terms; and for the purpose of collecting annual charges still due the United States.

* * * * *

I, G. W. Lineweaver, Secretary of the Federal Power Commission, hereby certify that the fore-

going is a true and correct copy of a portion of the minutes of a meeting of the Federal Power Commission in the City of Washington, District of Columbia, on the twenty-eighth day of April, 1933.

In testimony whereof, I have hereunto set my hand and caused the seal of the Federal Power Commission to be affixed at the City of Washington, District of Columbia, this twenty-eighth day of May, 1935.

G. W. LINEWEAVER,
Secretary. [2130]

The following is an extract from the minutes of a meeting of the Federal Power Commission held February 9, 1937.

Cancellation of License
(Project No. 57)

The Secretary reported that the Department of Justice had advised the Commission that the license of Columbia Valley Power Company, Project No. 57, on the Deschutes River, Oregon, was cancelled by decree of the United States District Court on December 19, 1936, which decree awards judgment in favor of the United States against the company in the amount of $18,501.75, and orders that the project property, if any, be sold to satisfy the judgment.

/s/ [Illegible]
Acting Secretary. [2131]

Item "B-1" by Reference: Application for license, Project No. 2030, filed May 23, 1949, incorporated by reference at page 467 of the transcript

of hearing in Project No. 2030, appears in this record at pages 2132-2206.

Item "B-2" by Reference: Supplement to Application for License for Project No. 2030 filed April 9, 1951, incorporated by reference at page 467 of the transcript of hearing in Project No. 2030, appears in this record at pages 2253-2298.

Item "B-3" by Reference: Supplement No. 2 to Application for License for Project No. 2030 filed June 15, 1951, incorporated by reference at page 467 of the transcript of hearing in Project No. 2030, appears in this record at pages 2313-2362.

Northwest Power Supply Company, Pelton Power Project, Deschutes River, Oregon. Project No. 2030.

Before the Federal Power Commission

APPLICATION FOR LICENSE

(1) The Northwest Power Supply Company, a corporation organized under the laws of the State of Oregon, and having its office and principal place of business at Portland, in the State of Oregon, hereby makes application to the Federal Power Commission for a license to authorize the construction, operation, and maintenance of certain project works fully described herein.

(2) The name, title, and post office address of the person to whom correspondence in regard to this application shall be addressed, is as follows: Thomas

M. Robins, Director and President, Northwest Power Supply Company, 510 Electric Building, Portland 5, Oregon.

(3) The applicant is a corporation and is organized under the following laws: The laws of the State of Oregon.

(4) The measure of control or ownership exercised by the applicant in any other organization or over applicant by any other organization is as follows: None. [2133]

(5) The applicant operates and/or proposes to operate in the following states: The State of Oregon.

(6) A concise general description of the project and the principal project works is as follows:

(a) Dams and Reservoirs:

The dam will be of the concrete arch, variable radius type, with gravity thrust blocks or abutments at both ends. It will be approximately 190 feet high, 10 feet thick and 850 feet long at the crest, and 47.5 feet thick at the base. These dimensions are based upon preliminary arch-dam analysis. Additional exploration work is contemplated to determine the location of foundation rock on the abutments. After this is done, additional analysis will be made before laying out construction drawings, but the analysis already made clearly indicates that a thin arch dam of approximately these dimensions may be designated for this site.

The reservoir is a long narrow reservoir in the Deschutes River canyon, being approximately 7.2

miles long and less than one-quarter of a mile wide at the widest point. The reservoir will be approximately 150 feet deep at the dam.

(b) Water Conduits:

The only water conduits involved are the penstocks from the dam to the turbines in the power house. The penstocks are 16 feet in diameter and approximately 135 feet long from the upstream face of the dam to the turbine inlet.

(c) Power Houses, Substations, Switchyards:

The power house will be immediately downstream from the dam, and as close to the dam as possible. It will be of the outdoor type [2134] with the generators housed in a metal cover, and will be serviced by a gantry crane. The main transformers, two at 13.2 kv to 230 kv, and one at 13.2 kv to 66.5/115 kv, will be located just upstream from the gantry crane and at the same level as the deck or generator floor. Transfer tracks will be provided for moving the transformers under the gantry crane, and an untanking hatch will be provided in the erection or service-bay at the east end of the power house.

Two units will be installed in the power house each having a capacity of 52,000 hp or 37,500 kw, total 104,000 hp or 75,000 kw, based upon guaranteed output by the turbine manufacturer. The expected output of each unit is 55,000 hp.

Facilities may be provided at the power house for catching fish for transporting to a fish hatchery, or provision for catching the fish may be made elsewhere, depending upon future negotiations with the State Fish Commission.

Substations will be provided where the transmission lines from the plant connect with existing transmission lines of the Central Oregon Transmission System of the Pacific Power and Light Company, more fully described under (d), below.

Switchyards: On account of the cramped space in the narrow canyon, no switchyard is planned at the powerhouse. Instead, the low-tension switching and the main step-up transformers will be placed between the power house and the dam and then a small switchyard, consisting principally of oil circuit breakers, and accessories, will be placed at the rim of the canyon near the plant.

(d) Transmission Lines:

Transmission lines will extend from the small switching [2135] station at the rim of the canyon near the power plant to connect with existing transmission lines, as shown on the General Map, Exhibit J.

One 69/115-kv transmission line will extend from the Pelton switching station almost due south approximately 5 miles to connect to the existing Madras-Cove transmission line which is part of the Central Oregon Transmission System of the Pacific Power and Light Company. This 69/115-kv line from Pelton to the Madras-Cove line will be built for 115-kv operation, but first will be operated at 69 kv until such time as the Madras-Cove line is changed over to 115-kv operation. This new line from Pelton to the Madras Cove line will also serve to supply power to the dam site during construction operations.

One 230-kv transmission line will extend from the Pelton switching station at the rim of the canyon, almost due eastward approximately seven (7) miles to connect to the existing Madras-Maupin line which is also a part of the Central Oregon Transmission System of the Pacific Power & Light Company. The Madras-Maupin line is now operated at 69 kv but would be changed over to 230-kv operation when power from the Pelton project becomes available and connected with the BPA transmission system at or near Maupin.

The above described transmission lines and interconnections have been discussed with the Bonneville Power Administration, and negotiations are now under way for an interchange agreement.

(7) The location of the project applied for is as follows:

(a) In the State of: Oregon,

(b) In the County of Jefferson,

(c) On the following named stream:

Deschutes River, carrying commerce to the following extent: None. [2136]

(d) In the region of the following named cities and towns: Madras, Oregon.

(8) Lands of the United States which will be affected are located in:

A powe. site reserve previously withdrawn from entry by the Federal Government. The power site reserve is bounded on the west side by the Warm Springs Indian Reservation. A complete description of the lands involved is contained in Exhibit F.

(9) The proposed scheme of development for the project is as follows:

Two units will be installed each with a rated turbine capacity of 52,000 hp and a rated generator capacity of 40,000 kva.

The flow available 90% of the time, as shown on the Flow-Duration Curve, Exhibit L-7, is 3600 cfs. The corresponding power available 90% of the time is 55,200 hp, or 39,000 kw.

The Flow-Duration Curve, Exhibit L-7, is subject to modification in the future by virtue of prior right appropriation for water for irrigation. (See also Exhibit H.) This appropriation for irrigation, however, will not affect the peaking capacity of the plant. It may reduce the power available 90% of the time slightly, and might reduce the annual energy output from 375,000,000 kwh to about 325,000,000 kwh.

The yearly output of energy, based upon the Flow-Duration Curve, Exhibit L-7, showing average stream flow for the last twenty-five (25) years of continuous record is estimated to be 375,000,000 kwh. This figure takes into account the waste over the spillway, and also the reduction in head occasioned by average drawdown in the reservoir during operation. The maximum drawdown will probably be from 3 to 5 feet.

The plant, to be of maximum benefit should be operated as a peak load plant. However, the ratio of average flow to maximum water use by the [2137] turbines makes it a high load-factor plant 4180/6900 or a yearly load factor of 60%.

The two units will develop the full power available from the strean flow except for 6% of the time (See Flow-Duration Curve, Exhibit L-7) when the flow exceeds 6900 cfs, which is the maximum capacity of the turbines.

The transmission lines which will be initially constructed as part of the project are described in Section 6 (d).

The line described as a 69/115-kv line from the Pelton power plant to the existing Madras-Cove transmission line will first be operated at 69 kv. Later on when the load conditions warrant it, this line will be changed over to 115-kv operation. Ultimately a second 115-kv line will be constructed parallel to it, and perhaps extended on southward to Redmond.

The location and capacity of future additional transmission lines will be based upon load conditions at that time.

(10) The proposed use or market for the power to be developed is as follows:

The applicant expects to sell the entire output of the plant to one or more operating utilities in the area or to lease the plant to an operating utility.

(11) The location, a brief description, and capacity of all power plants or other electric facilities owned or operated by the applicant, the market supplied thereby, and the relation thereof to the project applied for, are briefly described as follows:

None.

(12) The following exhibits are filed herewith and are hereby made a part of this application:

Exhibit A—Articles of Incorporation; By Laws; Certificate of Organization.

Exhibit B—Resolution of Board of Directors authorizing filing this application.

Exhibit C—Compliance with special Hydroelectric Water Power or Irrigation Laws of the State of Oregon.

Exhibit D—Compliance with the Laws of the State of Oregon.

Exhibit E—Statement of nature, extent, ownership of water rights.

Exhibit F—Ownership of Lands.

Exhibit G—Statement regarding financial ability of applicant.

Exhibit H—Effect of project operation on stream flow.

Exhibit I—Data upon which power is estimated.

Exhibit J—General Map showing location of project and existing and proposed transmission lines, Drawing No. F-95143.

Exhibit K—Detail Map showing project structures and project boundary, Drawing No. F-95144.

Exhibit L—General design drawings:

Drawing No. F-97683, L-1—General Plan.

Drawing No. F-97684, L-2—Cross section through dam and power house.

Drawing No. F-97685, L-3—Power house plans.

Drawing No. F-95137, L-4—Arch dam dimensions and stresses.

Drawing No. F-95139, L-5—Location of drill holes and test pits.

Drawing No. F-95140, L-6—Geologic section and logs of drill holes.

Drawing No. F-95141, L-7—Hydrographs and flow-duration curve.

Drawing No. F-95142, L-8—Electrical one-line diagram. [2139]

Exhibit M—General description and specifications of equipment.

Exhibit N—Cost Estimate of Project.

Exhibit O—Proposed construction program.

In Witness Whereof the applicant has caused its name to be hereunto signed by Thomas M. Robins, its President, and its corporate seal to be hereto affixed by Hillman Lueddemann, its Secretary thereunto duly authorized, this 16th day of May, 1949.

[Seal] NORTHWEST POWER SUPPLY COMPANY

/s/ By THOMAS M. ROBINS,
President.

Attest:

/s/ HILLMAN LUEDDEMANN,
Secretary. [2140]

Verification

State of Oregon,
County of Multnomah—ss.

Thomas M. Robins, being first duly sworn deposes and says: That he is the President of the Northwest

Power Supply Company, the applicant for a license, that he has read the foregoing application and knows the contents thereof; that the same are true to the best of his knowledge and belief.

/s/ THOMAS M. ROBINS

Subscribed and sworn to before me, this 16th day of May, 1949.

[Seal] /s/ [illegible]

Notary Public for Oregon. My Commission Expires: Nov. 5, 1950. [2141]

EXHIBIT A

Articles of Incorporation
By-Laws
Certificate of Organization

A certified copy and three (3) uncertified copies of the Articles of Incorporation of the Northwest Power Supply Company, dated the 19th day of January, 1949, are filed herewith. The certificate of the Corporation Commissioner of the State of Oregon shows that the Northwest Power Supply Company is in good standing and that there have been no amendments to the original articles of incorporation.

One certified copy and three (3) uncertified copies of the by-laws of the Northwest Power Supply Company are filed herewith.

Copies in quadruplicate of the certificate of organization are filed herewith.

Exhibit A—(Continued)

These statements are a part of the application for license made by the undersigned this 16th day of May, 1949.

NORTHWEST POWER SUPPLY COMPANY

/s/ By THOMAS M. ROBINS,
President. [2142]

State of Oregon
Corporation Department

I, Maurice Hudson, Corporation Commissioner and Custodian of the Seal of the Corporation Department of the State of Oregon, Do Hereby Certify:

That I have carefully compared the annexed copy of the Articles of Incorporation of Northwest Power Supply Company with the original now on file in my office; that the same is a correct transcript therefrom and of the whole thereof; that this authentication is in due form and by the proper officer;

That no amendments or supplementary articles of incorporation, or certificates of increase or decrease of the capital stock of this corporation, have been filed in this office; and

I Further Certify that Northwest Power Supply Company is, at the date of this certificate, duly authorized to transact business within this state and is in good standing as a subsisting corporation.

In Testimony Whereof, I have hereunto set my hand and affixed hereto the Seal of the Corporation

Exhibit A—(Continued)

Department of the State of Oregon, at Salem, this 9th Day of May, 1949.

[Seal] /s/ MAURICE HUDSON,
Corporation Commissioner. [2143]

ARTICLES OF INCORPORATION OF NORTHWEST POWER SUPPLY COMPANY

Know All Men by These Presents, that we, the undersigned, Thomas M. Robins, Hillman Lueddemann and Howard W. Turner, whose names are hereunto subscribed, do hereby associate ourselves for the purpose of forming a corporation under and pursuant to the general incorporation laws of the State of Oregon and for that purpose, we do hereby make, execute and adopt in triplicate the following Artic'es of Incorporation:

Article I.

The name assumed by this Corporation and by which it shall be known is Northwest Power Supply Company.

Article II.

The duration of this Corporation shall be perpetual.

Article III.

The enterprises, businesses, pursuits and occupations in which this Corporation proposes to engage are as follows:

1. The construction, purchase, acquisition, ownership, improvement, leasing from or to other cor-

Exhibit A—(Continued)

porations, governmental bodies or agencies, or individuals, maintenance, use and operation of plants and properties for the generation, manufacture, production and furnishing of light, heat and power including the generation, manufacture, production, furnishing, use and sale to the public generally, including other corporations, governmental bodies or agencies, towns, cities and municipalities, of electricity, gas, steam, compressed air, cold air and any and all other kinds of power, forces, fluids, currents, matters and materials used or which may be used for the purpose of illumination, heat, cold, motive power or for any other purposes for which such substances or any of them may now or hereafter be used or suitable for use together with transmission lines, distribution lines, equipment, shops, towers, poles, wires, pipes, conduits, apparatus and appliances, telephone lines, telegraph lines and machinery, buildings and property of any kind or nature whatsoever for the operation of such plants and properties.

2. The construction, purchase, acquisition, ownership, improvement, leasing from or to other corporations, governmental bodies or their agencies, or individuals, maintenance, use and operation of any railway lines, motor buses or truck lines with rolling stock and equipment, freight houses, stations, shops, power plants, depots, poles, wires, conduits, subways, apparatus and appliances, telephone lines, telegraph lines and other buildings and property for the operation thereof in, over, under, along

Exhibit A—(Continued)

and through any roads, highways, streets, alleys and other public places and private or public property in the State of Oregon or any other state in which this Corporation may be qualified to do business, and also bridges and ferries with boats, landings, docks, and other property for the operation thereof in, upon, over, across and along any of the rivers and streams in Oregon or bordering thereon or rivers or streams in or bordering any other state in which this Corporation may be qualified to do business.

3. Purchase, acquisition, ownership, holding, enjoyment and sale, pledge and other disposition of and trading or dealing in, shares of capital stock, bonds, notes, mortgages, debentures and other evidences of indebtedness of corporations and corporate securities of any kind or nature including particularly, shares of stock, bonds, notes, mortgages, debentures, evidences of indebtedness and securities of corporations owning and operating, or owning or operating, power plants, lighting or heating plants, gas manufacturing plants, distribution systems, railroads, or other transportation companies, or any or all thereof with full power and authority to exercise and enjoy all rights, powers and privileges of ownership of all shares of stock, bonds, notes, mortgages, debentures, evidences of indebtedness, corporate securities and choses in action at any time owned, acquired or held by it including the right to vote said shares of stock, and collect, receive and dispose of dividends upon such [2145]

Exhibit A—(Continued)

shares of stock, and to enforce, collect, receive and dispose of the interest and principal of all such bonds, notes, mortgages, debentures, evidences of indebtedness and choses in action including the right to acquire and own and dispose of any corporate securities issued by this Corporation.

4. In the prosecution of, and in connection with, and in addition to, the aforesaid general enterprises or pursuits in which this Corporation proposes to engage, there shall be included the following pursuits:

a. To construct, purchase, acquire or improve, lease from and to other corporations, governmental bodies or agencies, and individuals, maintain, use and operate water rights and privileges and water powers, riparian rights, canals, conduits and pipe lines and to operate and sell water and the use and flow of water to persons, corporations, factories, towns and cities for domestic or public purposes and for use as power and for manufacturing and other purposes.

b. To construct, purchase, acquire or improve, lease from and to other corporations, governmental bodies and agencies, and individuals, maintain, use and operate motor buses, motor trucks, and ferries and for this purpose, to exercise the right of eminent domain and appropriate private property.

c. To construct, purchase, acquire or improve, lease from and to other corporations, governmental bodies and agencies, and individua' , maintain, use and operate and manufacture, repair, deal in, fur-

Exhibit A—(Continued)

nish and sell any and all kinds of electrical apparatus, machinery, supplies and appliances or any form of transportation, equipment, and to engage in and carry on the business of importing, exporting, manufacturing, producing, buying, selling or otherwise dealing in and with goods, wares and merchandise of every class and description, and particularly, such goods, wares and merchandise which may directly or indirectly, promote the consumption or use of electrical energy, gas, water or their products or by-products or any form of transportation.

d. To construct, purchase, acquire or improve, lease from and to [2146] other corporations, governmental bodies and agencies, and individuals, maintain, use and operate parks, pleasure resorts and places of amusement and recreation and inns and hotels in connection with and located conveniently to any of the property or facilities of this Corporation.

e. To construct, purchase, acquire or improve, lease from and to other corporations, governmental bodies and agencies, and individuals, maintain, use and operate telephone and telegraph lines in connection with the operation of its properties and to operate cables under and over any land and under and over any rivers or streams for the purpose of transmitting information or intelligence by telephone or telegraph, or for the transmission or distribution of electrical energy, power, heat, light, gas, water or other substances.

Exhibit A—(Continued)

f. To purchase, acquire, possess, own, hold, improve, lease from and to other corporations, governmental bodies and agencies, and individuals, maintain and operate real property and to build dwelling houses, stores, mills, factories, warehouses, wharves, and any and all other buildings or structures and to lease, operate, sell and dispose of the same.

g. To lay out and plat any real property belonging to the Corporation into lots, blocks, squares, factory sites and other convenient forms, and lease, sell and dispose of the same, and to lay out, plot and dedicate to public use or otherwise, streets, avenues, alleys and parks.

h. To construct, purchase, acquire, own, improve, lease from and to other corporations, governmental bodies and agencies, and individuals, maintain, use and operate locks, canals, ditches, flumes, basins, dams, fish hatcheries or any other structure, and to lease, operate, sell and dispose of the same.

i. To acquire, own, use, deal in, furnish and sell timber, lumber, sawmill products, logs, wood, cord wood, fuel, gravel, earth, stone, coal and other minerals and plants and factories for the manufacture of any of the same, operate mines and quarries and use, sell or dispose of the products of any of said plants, factories, mines or quarries. [2147]

j. To construct, purchase, acquire, own, improve, lease from and to other corporations, governmental bodies and agencies, and individuals, maintain, use and operate wires, poles, conduits, subways, ap-

Exhibit A—(Continued)

paratus and appliances, plants and other properties necessary or convenient for the generation, manufacture, production or distribution of electricity, gas, heat, power, light, or any other commodities, fluid, force, matter or thing which this Corporation may generate, manufacture or produce, or for the sale, furnishing, distribution or transmission of the same to persons, corporations, governmental bodies and agencies, towns, cities or other purchasers or consumers.

k. To purchase, acquire, own, lease from or to other corporations, governmental bodies and agencies, and individuals, use, sell and transfer any franchises, permit, right or privilege necessary, expedient or convenient for the conduct of any enterprises, business or pursuit or occupation in which this Corporation is authorized to engage.

l. To charge and collect rates, fares, tolls and other compensation for any service, right, privilege, benefit, use, accommodation, passage, transportation, commodity or other matter, service, or thing, rendered or furnished by this Corporation.

m. To issue its stocks, bonds, coupon notes, promissory notes, debentures or any other obligations for the purpose of borrowing money and to mortgage, pledge or give or convey, in trust or otherwise, all of its property, real, personal or mixed, and its franchises, permits, rights and privileges, to secure the payment thereof.

n. To guarantee the stock, bonds or other obliga-

Exhibit A—(Continued)

tions and securities of other corporations or individuals.

o. To exercise the power of eminent domain to the extent and in the manner permitted by law.

p. Generally to do each and every act and thing which at any time may be necessary, requisite or convenient to do in order to accomplish the [2148] purposes herein expressed, and fully to enjoy its corporate powers.

Article IV.

The principal office and place of business of this Corporation shall be in the City of Portland, County of Multnomah, State of Oregon.

Article V.

The authorized Capital Stock of this Corporation shall be Five Thousand ($5,000.00) Dollars divided into five thousand (5,000) shares of Common Stock, each share to have a par value of One ($1.00) Dollar.

In Witness Whereof, we have hereunto set our hands and seals, in triplicate, this 19th day of January, 1949.

Witnesses: Chas. M. Sanford, Clarence D. Phillips, Thomas M. Robins, Hillman Lueddemann, Howard W. Turner.

State of Oregon,
County of Multnomah—ss.

This certifies that on the 19th day of January, 1949, personally came before me, a Notary Public for said County and State, the within Thomas M. Robins, Hillman Lueddemann, and Howard Turner,

Exhibit A—(Continued)

to me known to be the identical persons described in and who executed the within instrument and acknowledged to me that they executed the same freely and voluntarily for the uses and purposes therein set forth.

Witness my hand and seal this 19th day of January, 1949.

[Seal] CLARENCE D. PHILLIPS,
Notary Public for Oregon. My Commission Expires: Dec. 6, 1949. [2149]

Endorsed: 47688. Articles of Incorporation of Northwest Power Supply Company. Filed in the office of the Corporation Commissioner of the State of Oregon at 10:30 o'clock a.m., the 20th day of January, 1949.

MAURICE HUDSON,
Corporation Commissioner.

BY-LAWS OF NORTHWEST POWER SUPPLY COMPANY

Article I

Stockholders' Meeting

The annual meeting of the stockholders of this corporation shall be held at the office of the corporation in Portland, Multnomah County, Oregon, on the 3rd Monday of January of each year, at 10 o'clock a.m., and these by-laws shall be notice of such annual meeting, and no other notice shall be required.

Special meetings of the stockholders may be held at any time on call of the President or Vice Presi-

Exhibit A—(Continued)

dent, signed by the Secretary or by the Board of Directors, or by the stockholders representing one-half of all of the stock subscribed, upon giving two weeks' notice in writing to the President and Secretary of such meeting, and stating its object. Notice of any such special meeting shall be given to the stockholders in writing by the Secretary, deposited in the post office at Portland, Oregon, not less than ten days prior to the date of such meeting and addressed to each stockholder at the mailing address of such stockholder filed with the Secretary.

A representation of a majority of the stock of the corporation shall be necessary for the transaction of business at all meetings of stockholders. Notice of any special meeting may be waived by a stockholder by the execution of a written waiver of notice, or by appearing at and attending any stockholders' meeting. [2151]

Article II

Corporate Powers

Section 1. Number of Directors. The corporate powers of this corporation shall be vested in a board of 5 Directors who shall be stockholders, and 2 of said board shall constitute a quorum for the transaction of business.

Section 2. Election of Directors. The Directors shall be elected annually at the annual meeting of stockholders, and shall hold office until their successors are elected and qualified.

Section 3. Voting. Election of Directors shall be viva voce, unless a written ballot is requested

Exhibit A—(Continued)

by any stockholder present. If a written ballot is requested, the form of ballot and manner of voting shall be then determined by the stockholders then and there present, either in person or by proxy. The president and chairman of the meeting, after such election, shall declare the persons receiving the highest number of votes to be elected Directors of the corporation, and such declarations shall be entered upon the minutes of the meeting.

At all corporate meetings each stockholder, either in person or by proxy, who must be a stockholder in his own name, shall be entitled to as many votes as he own shares of stock. Such proxy shall be in writing and filed with the Secretary.

Article III

Meetings of Directors

Section 1. Regular Meetings. The regular meetings of the Board of Directors shall be held at the office of the corporation on the third Monday of January of each year immediately following the annual meeting of stockholders, and notice of such meeting is hereby dispensed with. [2152]

Section 2. Special Meetings. Special meetings of the board of directors may be held at any time on call of the president or chairman of the board, upon notice to the other members of the board at least two days prior to such meeting, or by written consent of all the directors prior to such meeting. Any director may waive the service of such notice by filing such waiver with the Secretary, or by attending the meeting.

Exhibit A—(Continued)

Section 3. Regular or Special Meetings. Regular or special meetings of the Board of Directors may be held within the State of Oregon at other places than Portland, and may also, upon written consent of all of the Directors to be filed with the Secretary, be held at places outside of the State of Oregon.

Article IV.

Powers of Directors

The Directors shall have power:

Section 1. To call special meetings of the stockholders when they deem it necessary.

Section 2. To appoint and remove at pleasure all officers, agents or employes of the corporation; prescribe their duties, fix their compensation, and require from them security for faithful service.

Section 3. To conduct, manage and control the affairs and business of the corporation, and to make rules and regulations, not inconsistent with the laws of the State of Oregon or the By-Laws of the corporation, for the guidance of the officers and management of the affairs of the corporation.

Section 4. To declare dividends out of the surplus profits, whenever they shall deem it expedient.

Section 5. To authorize the sale of all or any portion of the property of this corporation at any time as a whole (with the consent of the stockholders, as provided by statute) or in parcels, for such considerations and upon such terms as to the Board of Directors may be satisfactory, and in their judgment for the best interest of the corporation.

Exhibit A—(Continued)

Section 6. At any regular or special meeting of the Directors, a majority of the Board may, by resolution, remove any officer from his office and declare the same vacant for malfeasance in office.

Article V.

Duties of Directors

It shall be the duty of the Directors:

Section 1. To cause to be kept a complete record of all their minutes and acts, and also of the proceedings of the stockholders.

Section 2. To supervise all the acts of the officers and employes, require the secretary and treasurer to keep full and accurate books and accounts, and to prescribe the form and mode of keeping such books.

Section 3. To cause to be issued to the stockholders in proportion to their several interests, certificates of stock, not to exceed in the aggregate the capital stock of the company.

Section 4. To cause the moneys of the company to be safely kept, directing from time to time where they shall be kept or deposited.

Article VI.

Compensation of Officers and Employes

The officers and employes of this corporation shall receive such compensation as the Board of Directors may from time to time determine. [2154]

Exhibit A—(Continued)

Article VII.

Officers

Section 1. The officers shall consist of a President, Vice President, Secretary, Treasurer, and such other officers as the Board of Directors may deem advisable. Only the President shall be required to be a Director and/or a stockholder. The Treasurer may be a good and solvent bank to be selected by the Directors. Two or more offices may be held by the same person.

Section 2. President. The President shall preside at all meetings of the Directors or stockholders. He shall sign, as President, all certificates of stock. Subject to the direction of the Board of Directors, the President shall be the executive head of the company and its business. He shall call the Directors together whenever he deems it necessary.

Section 3. Vice President. In the absence of the President, the Vice President shall perform the duties of the President and in addition thereto shall perform such duties as he may be called upon to perform.

Section 4. Treasurer. It shall be the duty of the Treasurer to keep safely all moneys belonging to the company by depositing same in a good and solvent bank to be designated by the Board of Directors. He shall perform such other duties pertaining to his office as may be prescribed by the Board of Directors.

Section 5. Secretary. It shall be the duty of the Secretary to keep a record of the meetings of the

Exhibit A—(Continued)

Board of Directors and of the stockholders. He shall keep the book of blank certificates of stock, fill up and countersign all the certificates issued, and make the corresponding entries on the margin of such book on such issuance. He shall be [2155] the custodian of the common seal of the corporation and shall attach such seal to all contracts and other instruments in writing, whenever so directed by the Board of Directors. He shall perform such other duties as shall be prescribed by the Board of Directors.

Section 6. The Board of Directors, from time to time, may authorize employes of the corporation or other persons or corporations to sign checks or disburse the funds of the corporation.

Article VIII.

Vacancies

Vacancies in the Board of Directors shall be filled by the other Directors in office, and such person shall hold office until the next regular meeting of the stockholders and until his success is elected and qualified.

Article IX.

No contracts made or entered into by any of the officers of the corporation shall be valid without the previous authorization or subsequent ratification of the Directors.

Article X.

Books and Papers

The books and such papers as may be placed on file by vote of the stockholders or Directors shall at

Exhibit A—(Continued)

all times, in business hours, be subject to the inspection of the Board of Directors or of any stockholder.

Article XI.

Certificates of Stock

Certificates of stock shall be of such form and device as the Board of Directors may direct; and each certificate shall be signed by [2156] the President or Vice President and countersigned by the Secretary or Assistant Secretary, and express on its face its number, date of issuance, the number of shares for which and the person to whom it is issued.

The certificate books shall contain a margin, on which shall be entered the number, date, number of shares, and the person expressed in the corresponding certificate.

No certificate of stock will be delivered unless the person to whom it is issued shall in person or by attorney sign a receipt for same on the margin in the certificate book.

Article XII.

Transfer of Stock

Shares of the corporation may be transferred at any time by the holders thereof, or by attorney legally constituted, or by their legal representatives, by endorsement on the certificate of stock. But no transfer shall be valid until the surrender of the certificate and the acknowledgment of such transfer on the books of the company. No surrendered certificate shall be cancelled by the Secretary before a new one is issued in lieu thereof; and the Secretary

Exhibit A—(Continued)

shall preserve the certificate so cancelled as a voucher; if, however, a certificate shall be lost or destroyed, the Board of Directors may order a new certificate issued upon such guarantee, by the parties claiming the same, as they may deem satisfactory.

The receiver of the new certificate shall be required to sign a receipt for the same to be entered in the stub of the certificate book. No transfer shall be valid upon which any assessments are due or unpaid, or the holders of which are indebted to the company on any account whatever, without the consent of the Board of Directors. [2157]

Article XIII.

Seal

The corporation shall have a common seal, of which the following is an impression:

Article XIV.

Order of Business

The regular order of business shall be:

1. The roll call.
2. The reading of minutes of last meeting.
3. Unfinished business.
4. Such other business as may regularly come before the meeting.

Article XV.

Amendments

These By-Laws may be altered or amended at any annual meeting of the stockholders or Board of Directors or at any special meeting of the stockholders or Board of Directors called for that pur-

Exhibit A—(Continued)

pose by a majority of the stock represented at such stockholders' meeting, or by a majority of the Directors present at such meeting of the Board of Directors.

Article XVI.

These By-Laws shall always remain in possession of the Secretary of the company, and may be inspected at any time during office hours by any stockholder. [2158]

Certificate

I, Hillman Lueddemann, Secretary of the Northwest Power Supply Company, hereby certify that the foregoing is a true and correct copy of the by-laws of the Northwest Power Suppiy Company and of all amendments thereto.

In Witness Whereof I have hereunto set my hand and affixed the seal of this Company this 16th day of May, 1949.

[Seal] /s/ HILLMAN LUEDDEMANN,
Secretary, Northwest Power
Supply Company [2159]

Certificate of Organization

I, Hillman Lueddemann, Secretary of the Northwest Power Supply Company, do hereby certify that the organization of said corporation has been completed; and that the corporation is authorized to proceed with the project applied for according to the existing laws of the State of Oregon.

I further certify that attached hereto is a true

Exhibit A—(Continued)

copy of the by-laws with all amendments to date, and that the following is a true list of the principal officers and of the directors of the said corporation, with the full name and official designation of each: Thomas M. Robins, Director and President, 510 Electric Building, Portland 5, Oregon; Hillman Lueddemann, Director, Secretary, and Treasurer, 618 N.W. Front Avenue, Portland 9, Oregon; Howard W. Turner, Director and Vice President, Madras, Oregon.

Witness my hand and the seal of the corporation this 16th day of May, 1949.

[Seal] /s/ HILLMAN LUEDDEMANN,
Secretary. [2160]

EXHIBIT B

Resolution of Board of Directors Authorizing Filing This Application

One attested copy, and three (3) additional copies of all minutes and resolutions of the Board of Directors of the Northwest Power Supply Company authorizing the filing of this application for license are filed herewith.

This statement is part of the application for license made by the undersigned this 16th day of May, 1949.

NORTHWEST POWER SUPPLY COMPANY

/s/ By THOMAS M ROBINS,
President. [2161]

Exhibit B—(Continued)

Minutes of Meeting of Board of Directors of Northwest Power Supply Company

May 9, 1949

A special meeting of the Board of Directors of Northwest Power Supply Company was held in the office of the President, Thomas M. Robins, Electric Building on Monday, May 9, 1949, at 10 o'clock a.m.;

The following, being all of the Directors, were present: Thomas M. Robins, Hillman Lueddemann, Howard W. Turner, all of whom waived notice of the time and place of the holding of said meeting and consented to the holding thereof, and attended said meeting and voted thereat.

The President Thomas M. Robins presided, and the Secretary Hillman Lueddemann, recorded the minutes of the meeting.

The President announced that the first business to come before the meeting was the consideration of a resolution authorizing the filing with the Federal Power Commission, an application for a license to construct and operate a dam and power house at the Pelton Site on the Deschutes River in Jefferson County, Oregon. After consideration, and upon motion duly made, seconded and carried, the following resolution was unanimously adopted:

Be It Resolved that the officers of this Corporation be and they hereby are authorized and em-

Exhibit B—(Continued)

powered to file with the Federal Power Commission of the United States, an application for a license to authorize the construction, operation and maintenance of a dam and power plant at the Pelton Site on the Deschutes River in Jefferson County, Oregon, said application to be in such form as prescribed by the Rules of the Federal Power Commission, [2162]

Be It Further Resolved that the officers of this Corporation, be and they hereby are, authorized and empowered to make, execute, deliver or file any and all other application, supplements, amendments, instruments or documents, which may be required or desirable in connection with said application.

The President presented to the Board of Directors, a form of Assignment and Waiver, executed by the Central Oregon Peoples' Utility District, which had been accepted by the Corporation, waiving the prior rights, if any, of the said Utility District, to the use of the waters of the Deschutes River at or near the Pelton Site. Upon motion duly made, seconded and carried, the action of the officers in negotiating and accepting said assignment and waiver, was ratified and confirmed.

Thereafter the President reported on progress of the Pelton project and hearings before the Hydroelectric Commission of Oregon, after which there was a general discussion of the affairs of the corporation.

Exhibit B—(Continued)

No further business appearing before the meeting upon motion duly made, seconded and carried, the meeting was adjourned.

/s/ HILLMAN LUEDDEMANN,
Secretary.

Approved:

/s/ THOMAS M. ROBINS
/s/ HILLMAN LUEDDEMANN
/s/ HOWARD W. TURNER

I, Hillman Lueddemann, do hereby certify that I am the Secretary of the Northwest Power Supply Company, an Oregon Corporation, and that the foregoing is a true and complete copy of the minutes of the special meeting of the Board of Directors of said Corporation held on the 9th day of May, 1949, and of the resolution duly adopted at such meeting. [2163]

In Testimony Whereof, I have hereunto set my hand and affixed the corporate seal of said Northwest Power Supply Company this 16th day of May, 1949.

[Seal] /s/ HILLMAN LUEDDEMANN,
Secretary. [2164]

EXHIBIT C

Special Hydroelectric, Water-Power or Irrigation Laws of the State of Oregon

The special hydroelectric, water-power and irrigation laws of the State of Oregon which pertain to

Exhibit C—(Continued)

the construction and operation of the Pelton Power Project by the applicant are: The Water Code of Oregon being Titles 116 to 125 inclusive of Oregon Compiled Laws Annotated and all amendments thereto. The Fish and Game Code of Oregon being Titles 82 and 83 of Oregon Compiled Laws Annotated and all amendments thereto.

This statement is a part of the application for license made by the undersigned this 16th day of May, 1949.

NORTHWEST POWER SUPPLY COMPANY

/s/ By THOMAS M. ROBINS,
President

[2165]

EXHIBIT D

Compliance With the Laws of the State of Oregon

Under the Hydroelectric Act of Oregon, which is Chapter 1 of Title 119 Oregon Compiled Laws Annotated as amended, the applicant must obtain a license from the Hydroelectric Commission of Oregon authorizing the applicant to build and operate the Pelton Power Project and to appropriate water therefor. On January 20, 1949, the applicant filed with the Hydroelectric Commission of Oregon an application for a preliminary permit. On April 25, 1949, a hearing was held before the Hydroelectric Commission of Oregon on such application. To date the Hydroelectric Commission has not rendered its decision on such application. Should

Exhibit D—(Continued)

a preliminary permit be granted, the applicant will then file its application for a license under the provisions of the Hydroelectric Act of Oregon.

This statement is a part of the application for license made by the undersigned this 16th day of May, 1949.

NORTHWEST POWER SUPPLY COMPANY,

/s/ By THOMAS M. ROBINS,

President. [2166]

EXHIBIT E

Statement of Nature, Extent and Ownership of Water Rights

The water rights necessary for this project will be acquired by appropriation, purchase, lease or grant from the governmental authorities and other parties having either the ownership or control thereof.

The action being taken by the applicant under the Hydroelectric Act of Oregon and the present status thereof is described in Exhibit D hereto.

There is enclosed herewith a copy of an Assignment and Waiver executed by the Central Oregon Peoples' Utility District to the Northwest Power Supply Company wherein the Central Oregon Peoples' Utility District assigns to the applicant any rights which it may have to appropriate water

Exhibit E—(Continued)

from the Deschutes River subject to certain conditions set forth in said Assignment and Waiver.

As shown by Exhibit F all of the lands on the west bank of the Deschutes River which will be affected by this project are on the Warm Springs Indian Reservation. Arrangements for the use of these lands will have to be made with the appropriate authorities.

These statements are a part of the application for license made by the undersigned this 16th day of May, 1949.

NORTHWEST POWER SUPPLY COMPANY,

s By THOMAS M. ROBINS,
President. [2167]

Assignment and Waiver

Know All Men by These Presents: That whereas the Central Oregon Peoples' Utility District, a municipal corporation of the State of Oregon, on the 16th day of August, 1941, filed in the office of the State Engineer of Oregon at Salem, Oregon, an application for a permit to appropriate water and build a dam and hydroelectric plant on the Deschutes River at a point 700 feet North and 2800 feet West from the Southeast corner of Section 35, Township 10 South, Range 12 East, Willamette Median, in the County of Jefferson, State of Oregon; and

Exhibit E—(Continued)

Whereas, the Northwest Power Supply Company, an Oregon corporation, on the 20th day of January, 1949, filed in the office of the Hydroelectric Commission of Oregon at Salem, Oregon, an application for a preliminary permit for the appropriation of water and the construction of a dam and hydroelectric plant on the Deschutes River in the Southwest quarter of the Southwest quarter of Section 18, Township 10 South, Range 13 East, Willamette Meridian, in the County of Jefferson, State of Oregon; and

Whereas, the construction of a dam at the location filed upon by the Northwest Power Supply Company would flood any dam which might be constructed at the location filed upon by the Central Oregon Peoples' Utility District; and

Whereas, no construction has been started by the Central Oregon Peoples' Utility District at such location; and

Whereas, the Central Oregon Peoples' Utility District by virtue of such prior filing and by virtue of the priorities accorded a peoples' utility district under the laws of the State of Oregon has a prior right to the appropriation of water over the right of the Northwest Power Supply Company; [2168]

Now Therefore, by virtue of these premises and in consideration of the sum of One Dollar and other good and valuable considerations paid by the Northwest Power Supply Company to the Central Oregon

Exhibit E—(Continued)

Peoples' Utility District, the Central Oregon Peoples' Utility District hereby sells, assigns, transfers and sets over unto the Northwest Power Supply Company any and all right, title, interest or claim which it may have to appropriate water from the Deschutes River and to build a dam and hydroelectric plant on the Deschutes River; and the Central Oregon Peoples' Utility District hereby withdraws its said application for a permit to appropriate water from the Deschutes River and to construct a dam and hydroelectric plant; and the Central Oregon Peoples' Utility District hereby waives and relinquishes any and all rights which it may have to appropriate water from the Deschutes River and to build a dam and hydroelectric plant on the Deschutes River at or above the location filed by the Northwest Power Supply Company and below the confluence of the Crooked River and the Deschutes River; the said Central Oregon Peoples' Utility District reserving to itself, however, any present statutory right or rights under the statutes in effect at the time of this agreement, (and shall not be effected by any amendments thereof) which it may have as a peoples' utility district to take over any dam or hydroelectric plant which may be constructed by the Northwest Power Supply Company on the Deschutes River either by condemnation or in any other manner provided by law; provided however, that the Central Oregon Peoples' Utility District agrees that it will not take over said dam

Exhibit E—(Continued)

or hydroelectric plant, or any facilities in connection therewith, at least until such time as a major portion of the power units have been installed in McNary Dam on the Columbia River and electric energy is delivered therefrom. [2169]

As a part of the consideration for this agreement, the Northwest Power Supply Company does hereby agree that the distribution of power from the proposed dam and hydroelectric plant which may be constructed by Northwest Power Supply Company shall be distributed so far as possible in the counties of Deschutes, Crook and Jefferson in the State of Oregon prior to use elsewhere of such electric energy; provided, however, that any such priority in favor of Deschutes, Crook and Jefferson Counties, Oregon, shall be subject to proportionate curtailment which may be necessary in general in the Pacific Northwest by reason of any power shortage which might arise prior to the completion and installation of a major portion of the units in McNary Dam on the Columbia River and the delivery of electric energy therefrom.

The Northwest Power Supply Company by the acceptance of this Assignment and Waiver does hereby acknowledge the terms and conditions herein set forth.

In Witness Whereof the Central Oregon Peoples' Utility District, pursuant to a resolution duly adopted by its Board of Directors on the 14th day of April, 1949, has caused the foregoing instru-

Exhibit E—(Continued)

ment to be executed in triplicate by its duly authorized officers.

[Seal] CENTRAL OREGON PEOPLES' UTILITY DISTRICT,

/s/ By J. D. DONOVAN, President.

Attest

/s/ THOMAS BOEKE, Secretary [2170]

State of Oregon,
County of Deschutes—ss.

On this 15th day of April, 1949, before me, the undersigned, a Notary Public in and for said County and State, personally appeared J. D. Donovan and Thomas Boeke, both to me personally known, who being duly sworn did say that he, the said J. D. Donovan, is the President, and he, the said Thomas Boeke is the Secretary of the Central Oregon Peoples' Utility District, the above named municipal corporation, and the foregoing instrument was executed on behalf of said municipal corporation by authority of its Board of Directors and said J. D. Donovan and Thomas Boeke acknowledged said instrument to be the free act and deed of said municipal corporation.

In Testimony Whereof, I have hereunto set my hand and affixed my official seal this 15th day of April, 1949.

[Seal] /s/ J. M. SHIVELY,
Notary Public for Oregon. My commission Expires 12/28/1951.

Exhibit E—(Continued)

Acceptance

The undersigned Northwest Power Supply Company, Grantee in the foregoing Assignment does hereby accept said Assignment and agrees to the conditions, restrictions and provisions contained therein.

[Seal] NORTHWEST POWER SUPPLY COMPANY,

/s/ By THOMAS M. ROBINS,

President. [2171]

EXHIBIT F

Ownership of Lands

1. Most or all of the land required for the dam, reservoir and power plant is on U. S. government land previously withdrawn from entry for power site purposes. Application will be made to proper authority for a grant or permit to use this land, for which any required payments will be made.

2. Lands of the United States which will be affected are located in:

Land in T 10S-R 13E: S.W. ¼ of Section 18, N.W. ¼ of Section 19, N.W. ¼ of S.W. ¼ of Section 19, S.W. ¼ of N.W. ¼ of Section 30, N.W. ¼ of S.W. ¼ of Section 30.

Land in T 10S-R 12E: E. ½ of E. ½ of Section 24, W. ½ of S.E. ¼ of Section 24, N.E. ¼ of Section 25, N. ½ of S.E. ¼ of Section 25, S.W. ¼ of S.E. ¼ of Section 25, S.W. ¼ of Section 25, N.W. ¼ of N.E. ¼ of Section 36, N.W. ¼ of

Exhibit F—(Continued)

Section 36, N. ½ of S.W. ¼ of Section 36, [2172] S.W. ¼ of S.W. ¼ of Section 36, S. ½ of N.E. ¼ of Section 35, S.E. ¼ of Section 35.

Land in T 11S-R 12E: W. ½ of N.E. ¼ of Section 2, W. ½ of Section 2, N. ½ of N.W. ¼ of Section 11, S.W. ¼ of N.W. ¼ of Section 11, N.W. ¼ of S.W. ¼ of Section 11, N.E. ¼ of N.E. ¼ of Section 10, S. ½ of N.E. ¼ of Section 10, S. ½ of Section 10, N.W. ¼ of N.W. ¼ of Section 15, E. ½ of W. ½ of Section 15, W. ½ of E. ½ of Section 15, E. ½ of S.W. ¼ of Section 15, E. ½ of S.E. ¼ of Section 15, N.E. ¼ of Section 22, N. ½ of S.E. ¼ of Section 22, S.W. ¼ of S.E. ¼ of Section 22, E. ½ of S.W. ¼ of Section 22.

These lands, located within the Project Boundary, are shown on the accompanying map, Exhibit K. They are on a special reservation of lands previously withdrawn for power site purposes. The reservoir west of the river [2173] is on the Warm Springs Indian Reservation.

3. All other lands and property necessary for the project will be acquired by purchase or condemnation.

These statements are a part of the application for license made by the undersigned this 16th day of May, 1949.

NORTHWEST POWER SUPPLY COMPANY,

/s/ By THOMAS M. ROBINS,

President. [2174]

EXHIBIT G

Statement Regarding Financial Ability of Applicant

The applicant proposes to finance this project primarily by the private sale of first mortgage bonds to an institutional buyer, and by the sale either publicly or privately of junior securities. It is anticipated that the amount of first mortgage bonds sold will represent between 85% and 95% of the cost of the project. A national investment banking concern is representing the applicant in connection with the proposed financing and a large life insurance company has indicated a strong interest in the purchase of the proposed first mortgage bonds.

This statement is a part of the application for license made by the undersigned this 16th day of May, 1949.

NORTHWEST POWER SUPPLY COMPANY,

/s/ By THOMAS M. ROBINS,
President. [2175]

EXHIBIT H

Effect of Project Operation on Stream Flow

The average monthly discharge for the last 25 years of continuous record, Oct. 1923-Sept. 1948, is 4180 cfs. The lowest momentary flow at Pelton was 2940 cfs on September 20, 1942. The peak flow of the river since observations began was 13,300 cfs on January 1, 1943. The stream flow is remark-

Exhibit H—(Continued)

ably uniform, as indicated by the hydrographs shown on the drawing, Exhibit L-7.

The plant, to be of greatest benefit to the Pacific Northwest, must be operated as a peak load plant insofar as possible. The relations between stream flow, size of reservoir, and installed capacity are such that the plant must operate at a high load factor, namely about 60% based upon average flow. The reservoir is so small, 26,000 acre feet, surface area 460 acres, that no substantial amount of water may be stored and later used for power production. Therefore, for practical purposes, the stream flow for each day must pass through the plant.

Under normal conditions, the minimum discharge past the plant will be equal to the minimum discharge of record, namely 2940 cubic feet per second. Under minimum flow conditions of approximately 3000 cubic feet per second it is planned to operate two units for four hours per day at peak load, 75,000 kw, discharging 7000 cubic feet per second, and then run only one unit the remaining 20 hours at a load of 22,700 kw and a discharge of 2200 cubic feet per second. The minimum discharge will be 2000 cubic feet per second. [2176]

This statement is a part of the application for license made by the undersigned this 16th day of May, 1949.

NORTHWEST POWER SUPPLY COMPANY,

/s/ By THOMAS M. ROBINS,

President. [2177]

EXHIBIT I

Data Upon Which Power Is Estimated

1. Hydrographs and a flow-duration curve are herein submitted on one of the drawings, Exhibit L-7. A tailwater rating curve and reservoir capacity and area curves are shown on one of the drawings, Exhibits L-1 and L-3.

The tailwater rating curve is for existing conditions, and shows that for a flow of 6900 cfs (the maximum capacity of the two units) the tailwater is at elevation 1425.8. The normal reservoir evel will be at elevation 1563. This will provide a gross head of 137.2 feet.

It is at present planned to put the powerhouse and the units low enough so that they will be the proper distance above tailwater when the tailwater is lowered to elevation 1413, thereby producing a gross head of 150 feet.

It is planned to excavate the river channel downstream from the powerhouse so as to lower the tailwater 12.8 feet. This work is not to be done at this time, but will be done some time in the future when and if conditions warrant it. Another method of providing the additional 12.8 feet of head would be to make the dam that much higher, which is estimated to cost $430,000. Preliminary estimates indicate that dredging the river to lower the tailwater 12.8 feet will cost $300,000 or more. As the cost of raising the dam is more determinable, at this time, the present cost estimates include

Exhibit I—(Continued)

a figure of $430,000 for obtaining the extra 12.8 feet. Which ever method works out the cheapest will ultimately be used. [2178]

2. The flow-duration curve, Exhibit L-7, shows that 3600 cubic feet per second is available 90% of the time, which flow will produce 55,200 hp or 39,000 kw. The yearly output of energy based upon average stream flow for 25 years, 4180 cubic feet per second, is estimated to be 375,000,000 kwh. This figure takes into account the waste over the spillway, and also a reduction of 3% in the head occasioned by average drawdown in the reservoir due to operation.

The flow-duration curve, Exhibit L-7, is subject to modification in the future by virtue of prior right appropriation for water for irrigation. This appropriation for irrigation, however, will not affect the peaking capacity of the plant. It may reduce the power available 90% of the time slightly, and might reduce the annual energy output from 375,000,000 kwh to about 325,000,000 kwh.

3. The long narrow reservoir with a small surface area, makes the subject of evaporation from the surface of the reservoir practically insignificant in relation to the total volume of water available. No correction for evaporation was made.

4. The proposed interconnections with other power system are outlined in Section 6 (d) of the application.

Exhibit I—(Contin'ed)

This statement is a part of the application for license made by the undersigned this 16th day of May, 1949.

NORTHWEST POWER SUPPLY COMPANY,

/s/ By THOMAS M. ROBINS,
President. [2179]

EXHIBIT J

General Map

1. A General Map, Exhibit J, Drawing No. F-95143, is submitted herewith:

It shows the location of the principal features of the project, including the dam, powerhouse, reservoir, and transmission lines. It also shows the location with respect to State and County lines, and shows the transmission-line connections to the existing transmission lines of the Central Oregon Transmission system of the Pacific Power and Light Company.

No roads, railroads, towns, other improvements will be flooded by the proposed reservoir.

This map is a part of the application for license made by the undersigned this 16th day of May, 1949.

NORTHWEST POWER SUPPLY COMPANY,

/s/ By THOMAS M. ROBINS,
President. [2180]

EXHIBIT K

Detail Map

A Detail Map Exhibit K, Drawing No. F-95144, is submitted herewith:

It shows the dam, reservoir, power plant, project boundary, and other features required to be shown on this map.

This map is a part of the application for license made by the undersigned this 16th day of May, 1949.

NORTHWEST POWER SUPPLY COMPANY,

/s/ By THOMAS M. ROBINS,
President. [2181]

EXHIBIT L

General Design Drawings

Eight (8) general design drawings, Exhibit L, are submitted herewith, as follows:

Exhibit L-1, Drawing No. F-97683—General Plan.

Exhibit L-2, Drawing No. F-97684—Cross-section through dam and powerhouse.

Exhibit L-3, Drawing No. F-97685—Powerhouse plans.

Exhibit L-4, Drawing No. F-95137—Arch dam dimensions and stresses.

Exhibit L-5, Drawing No. F-95139—Location of drill holes and test pits.

Exhibit L-6, Drawing No. F-95140—Geologic sections and logs of drill holes.

Exhibit L—(Continued)

Exhibit L-7, Drawing No. F-95141—Hydrographs and flow-duration curve.

Exhibit L-8, Drawing No. F-95142—Electrical One-line diagram.

These drawings are a part of the application for license made by the undersigned this 16th day of May, 1949.

NORTHWEST POWER SUPPLY COMPANY,

/s/ By THOMAS M. ROBINS,
President. [2182]

EXHIBIT M

General Description and Specifications of Equipment

It is proposed to install mechanical, electrical, and transmission equipment as follows:

Main Turbines will be vertical shaft, Francis type machines direct-connected to vertical shaft generators. The turbines will be designed to develop 52,000 hp when operating under a net effective head of 150 feet at a speed of 128.5 rpm. The normal quantity of water required for each turbine will be 3450 cfs. Each turbine will be provided with a spiral scroll case. The turbines will be controlled and regulated by oil pressure governors arranged for hand and switchboard control.

Penstocks

The penstocks will be 16 feet in diameter and

Exhibit M—(Continued)

approximately 160 feet long. They will be of riveted or welded steel construction.

Gates

Each penstock will be provided with a Broome gate placed at the penstock intake, and controlled electrically from the power house.

Steel draft tube gates will be provided at the draft tube exit. When not in use, they will be stored in a gate storage chamber.

Main Generators will be of the vertical shaft type, direct-connected to vertical shaft hydraulic turbines. Each generator will be a three-phase, 13,800-volt unit rated at 40,000 kva at 0.9 power factor, operating at 128.5 rpm. Main and pilot exciters will be mounted above the rotor of each generator, and will be provided with an adequate cooling and ventilating system. The power house will be of the outdoor type with the generators placed on the top deck or floor. The generators will be housed in a heavy steel housing. [2183]

Gantry Crane

A 175-ton gantry crane with a 20-ton auxiliary hook will be provided. The heaviest piece to be lifted is the generator rotor weighing 320,000 pounds. The crane will traverse the length of the power house and also over the erection bay at the east end of the power house.

Electrical Equipment for the main generators will be as follows:

Exhibit M—(Continued)

Surge protective equipment consisting of lightning arrestors and capacitors will be connected to the main leads. Adequate grounding will be provided. Switchboard will be provided to consist of instrument and control panels, board, relay panels, and auxiliary control panels. Auxiliary power transformers will be provided.

Transformer Equipment

The transformer equipment can not be decided until the transmission arrangement is settled, and this matter is still open for several possible alternatives. (See Section (d) of the application.) However, Alternate No. 1 Sec. (d), is the most likely of final adoption.

For this scheme of transmission, the transformer equipment will consist of a bank of two 32,000/40,000-kva, 3-phase, forced air-cooled transformers with secondary voltage at 13,200 volts and primary voltage at 230,000 volts, and one 15,000-kva, 3-phase, self-cooled transformer with secondary voltage at 13,200 volts and primary voltage at 69,000 volts.

Control equipment will consist of oil or air circuit breakers for generator and line control of appropriate current and voltage ratings, electrically operated from the switchboard.

Miscellaneous Power Plant Equipment

Some ventilation equipment may be installed, though in this [2184] climate only a moderate amount will be necessary. Electric heating will be provided for cold weather. Air compressors, oil

Exhibit M—(Continued)

filters, unwatering pumps, and other usual accessories and control apparatus will be provided. Interior and exterior lighting will be provided.

These statements are a part of the application for license made by the undersigned this 16th day of May, 1949.

NORTHWEST POWER SUPPLY COMPANY,

s/ By THOMAS M. ROBINS,
President.

* * * * *

F.P.C. Received May 23, 1949. [2185]

EXHIBIT N

Estimate of Cost

An estimate of the cost of constructing the initial development of this project is filed herewith. It includes the cost of the dam, reservoir, power plant switching stations and facilities for protection and preservation of fish. The total of this estimate, including overhead and interest during construction is $12,775,000.

The estimated cost of installing necessary transmission lines for connection with Central Oregon Transmission System of P. P. & L. Co. (including all overhead) is $250,000. Detailed estimate will be provided later.

This statement is part of the application for

Exhibit N—(Continued)

license made by the undersigned this 16th day of May, 1949.

NORTHWEST POWER SUPPLY COMPANY,

/s/ By THOMAS M. ROBINS,
President. [2186]

Columbia River Salmon & Tuna Packers Association, Astoria, Oregon

Federal Power Commission, June 8, 1949
Washington 25, D. C.

Re: Proposed Dam at Pelton Site on Deschutes River, Oregon. Project No. 2030.

Gentlemen:

We have been advised that the Northwest Power Supply Company has made an application to your commission for a permit to build a hydroelectric dam at the Pelton site on the Deschutes River.

Your representative on the Columbia Basin Inter-agency Committee has no doubt been advised as to current plans for development of the Columbia River Basin, which involves a program of leaving the Columbia River tributaries below McNary Dam site, except the Willamette system, free from dams or other obstructions that might halt the migration of the anadromous fish.

The members of this association feel very strongly that the granting of this permit would completely destroy the value of the Deschutes River as a salmon bearing stream. This river has the greatest possi-

bilities as a major high-quality salmon run than any other Columbia River tributaries below the McNary Dam. The state of Washington has enacted a law preventing instances such as this in relation to all Columbia River tributaries below the McNary Dam site. An attempt was made to have a similar law passed at the last session of the Oregon Legislature, but this movement failed in relation to the Deschutes River on account of heavy pressure from private power interests, which are interested in the Pelton Dam development as planned by the Northwest Power Supply Company.

The many groups and organizations opposed to the Pelton project submitted briefs and extended oral testimony at a hearing held before the Oregon State Hydroelectric Commission in Portland, Oregon, on April 25, 1949. We do not know the procedure contemplated by the Federal Power Commission but stand ready to submit a brief covering all phases of our objection to the project if it is desired. We also request that if the Federal Power Commission want any public hearings on this application that such hearing be held at Portland, Oregon.

Yours very truly,

COLUMBIA RIVER SALMON &
TUNA PACKERS ASSOCIATION
/s/ By JAMES H. CELLARS, Secretary

JHC:bh [2207]

F.P.C. Received June 13, 1949.

[Letterhead of Isaak Walton League of America, Inc.]

Project No. 2030

327 C. A. Johnson Bldg.
Denver 2, Colorado
June 8, 1949

Federal Power Commission
Washington 25, D. C.

Re: Proposed Dam—Pelton Site Deschutes River, Oregon.

Gentlemen:

This office has been advised by the Oregon Division of the Izaak Walton League of America that the Northwest Power Supply Co. has made application to your Commission for a permit to construct a dam at the Pelton Site on the Deschutes River, Oregon.

We would appreciate it, if at the time a decision may be made that a public hearing be held in connection with that application, that we be advised and given the privilege of making a statement on behalf of the Izaak Walton League of America.

Sincerely yours,

/s/ J. W. PENFOLD,
Western Representative.

* * * * *

F.P.C. Received June 13, 1949. [2208]

Fish Commission of Oregon
510 Governor Bldg., S. W. 2nd Ave. At Stark
Portland 4, Oregon

June 9, 1949

Project 2030

Federal Power Commission
1800 Pennsylvania Avenue
Washington, D. C.

Gentlemen:

The Oregon Fish Commission has been informed that the Northwest Power Supply Company has applied to the Federal Power Commission for a permit to build a dam at the Pelton Site on the Deschutes River in Oregon. The site in question is some seven or eight miles below the mouth of the Metolius River, a vital tributary from a standpoint of Columbia River salmon production. Because the Metolius River and other salmon producing areas in the Deschutes above the damsite will be rendered useless for salmon production by the proposed dam, and because the history of such projects indicates that the migratory fishes now using those areas will be exterminated, the Fish Commission of Oregon protests the granting of the application of the Northwest Power Supply Company or any other organization wishing to construct a barrier in that part of the Deschutes River.

The Commission's staff has critically analyzed the outlook and has gathered as much information as is available regarding the present fish populations which will be affected by the proposed construction. The information obtained has been incorporated in

a brief of which we are enclosing five copies. Your attention is drawn to the fact that the species of salmon involved are not only the most valuable in the Columbia River System but are the easiest to eliminate by the erection of such barriers. Your attention is also drawn to the fact under the Lower Columbia Rehabilitation Program, the fisheries departments of the northwest and the U. S. Fish and Wildlife Service are presently engaged in improving and safeguarding the salmon runs below the site of McNary Dam. Even now the clearing of log jams and allied stream improvement work and the construction of hatcheries is under way. The Fish Commission's hatchery on the Metolius River is scheduled to become a vital part of that program inasmuch as the Federal Government plans to invest some two hundred thousand dollars additional monies in that facility. This hatchery is ideally situated in a location that, to our knowledge, cannot be duplicated on the Deschutes River or anywhere else in Oregon. The completion of the hatchery is contingent upon the denial of the permit to build the dam at the Pelton site. [2209]

The Deschutes River is the most important Oregon tributary of the Columbia River below McNary Dam and east of the Cascade Mountains. Consequently the maintenance of salmon populations in that tributary is vital to the success of the Lower River Plan. This program has the support of the Army Engineers and the Department of the Interior and the sanction of the National Congress in that the latter body has already appropriated a million

dollars to safeguard the salmon runs below McNary Dam. In addition, the Congress has been given to understand that the total cost of the Lower River Development Program will be in the general magnitude of twenty million dollars.

Should the Federal Power Commission consider holding public hearings regarding the application to build this dam at the Pelton Site, we request that the hearings be held in this area preferably in Portland. The matter is of region-wide importance and it is probably that a hearing in Portland would minimize the travel required by the participants.

Very truly yours,

/s/ JOHN C. VEATCH,
Chairman, Oregon Fish Commission.

STATEMENT REGARDING THE DESCHUTES RIVER AND TRIBUTARIES

With Particular Reference to the Metolius River by the Fish Commission of Oregon

Introduction

At the present time only 30 per cent of the original total stream mileage of the Columbia River remains available to salmon and steelhead. Some 40 dams already constructed have eliminated the additional 70 per cent once available. With the construction of McNary Dam under way and with erection of a number of other Columbia and Snake River dams being proposed and recommended to the National Congress, the tributary streams below McNary Dam

have assumed a new and increased importance to the fisheries of the Columbia River. There is little doubt that the construction of many of the proposed dams will result in a sharp decline in the salmon populations of the Columbia Basin. The fishery will almost certainly experience a severe shock and an unprecedentedly rapid decline before it becomes stabilized on the stocks that remain. The fishing pressure on the remaining fish populations will be acute.

Since it is the duty of the Oregon Fish Commission to perpetuate the fisheries of this State, this organization has, with the State of Washington Department of Fisheries and the U. S. Fish and Wildlife Service, taken cognizance of the situation and is making every effort to ameliorate the loss of upriver spawning areas by developing those below McNary Dam. The Deschutes River is one of the key tributaries in this program.

Lower River Plan

The plan of building up the spawning runs below McNary has come to be [2211] known as the "Lower River Fisheries Development Plan" or simply "Lower River Plan." This program envisions increased salmon runs through widespread construction of hatcheries, removal of obstructions, building of fishways, and the abatement of pollution. Concomitant engineering, biological, and water resource studies are planned. Cost of the program is estimated to be some 20 million dollars. One million dollars has already been appropriated and work is proceeding. An essential part of this plan is the creation of fish sanctuaries, where a long-time program of fisheries

rehabilitation and maintenance can be consummated.

The Lower River Plan was conceived by Federal and State fisheries agencies and is endorsed by the Federal Inter-Agency River Basin Committee and by the National Congress in that the latter body has already appropriated the aforementioned one million dollars to further the program.

Present Facilities

In 1947, the Fish Commission started construction of a hatchery on the Metolius River as an aid in attaining the potential production from this river. The water supply for this hatchery, having an average winter temperature of 44 degrees F. and an average summer temperature of 47 degrees is ideal for the artificial propagation of salmon. To date, the Fish Commission has spent $70,000 on the construction of this station which now has pond space to rear 250,000 fish to yearling size, or more if they are liberated at a younger age. With the additional expenditure of $200,000 budgeted by the Federal Government under the "Lower River Plan" for the expansion of the facilities of this hatchery, there will be pond space to rear 1,200,000 fish to yearling size. In addition to this work the Fish Commission has already improved conditions along the migratory path of the adults by installing an effective fishway over Sherar's Falls. In addition to substantial moneys provided the Fish Commission by the [2212] SERA for preliminary work some years ago, this work has involved the recent expenditure of $5,000 by the Fish Commission to complete this project.

Runs of Migrating Fish

Although the exact size of the runs to the Deschutes and its tributaries is not known, provisional estimates have been made. The most important known spawning tributaries are the Warm Springs River, Metolius River and Crooked River. Squaw Creek, which joins the Deschutes above the mouth of the Crooked River, is said to provide spawning grounds for steelhead. At the present time the Crooked River chinook runs are depleted and the steelhead populations have declined considerably, presumably as a result of extensive irrigation obstructions and diversions. The Metolius and the Warm Springs Rivers, therefore, are the key streams to the Deschutes system.

The name Metolius, we are told, meant in the Indian language "the river of stinking fish," probably referring to the decaying carcasses of the thousands of salmon that once spawned there. Only a fraction of the present run arrives at the hatchery, which is almost at its source. Spawning occurs from there down at least nine miles. Quiescent and apparently spent salmon have been seen in the lower Metolius and some spawning may occur throughout its length. Only one lower Metolius tributary, a stream known locally as "Two Creeks," is said to provide spawning for spring chinooks. The run there is probably small. Spring chinooks also spawn in small numbers in such upper Metolius tributaries as Lake Creek, Spring Creek and Jack Creek.

In 1942 the two miles of the Metolius spawning grounds above Camp Sherman (near the upper extremity of spawning) were examined by Mr. French, our Director of Fish Culture, and he estimated that 3,000,000 eggs were available among the females there for artificial propagation. An authority on such matters, his estimate was conservative. In terms of fish, his estimate [2213] involves about 2,000 spring chinooks. Consider, then, that spawning takes place for at least nine miles downstream. It would seem that the population numbers between 5,000 and 10,000 fish of this species. Tentatively we estimate the present average population at 5,000 fish.

In view of Mr. French's observations, those of individuals well acquainted with the upper Metolius are interesting, especially as they involve earlier years. According to them, there were at least 3,000 fish in the area from Camp Sherman to Spring Creek in not only 1942 (note that this is 50 per cent higher than the conservative estimate of Mr. French) but also in 1934, 1938, and 1944.

It was in 1942 that taking salmon off the spawning area became particularly serious. The State Police informed the Fish Commission at that time that salmon were being shipped out of the upper Metolius in small trucks and trailers.

The Deschutes has a large run of fall migrating steelhead and provides some of the finest fishing in Oregon for that species. Apparently, steelhead spawn in the Crooked River, the main Deschutes and the Metolius River, in addition to the Warm

Springs River, which is below the proposed dam site (see later). Steelhead have been taken by anglers at the mouth of the Metolius. The name of the lowest falls on the Deschutes is Steelhead Falls and indicates for all time the presence of these sea-run rainbow trout in that vicinity.

Blueback salmon were introduced into Suttle Lake some years ago, and for a time there were a number of adults migrating up the Deschutes and Metolius to that area. This run was seriously affected by a combination of factors, the most serious of which was the construction of an impassable barrier at the outlet of the lake. A remnant of this run remains, however. The barrier has since been made passable, and efforts are being made to build up the bluebacks. In 1948, 500,000 blueback eggs were shipped to the Metolius [2214] hatchery in order to further this effort. Bluebacks in the upper Columbia have responded to artificial propagation and transplantation, and there is reason to be somewhat optimistic about the possiblility of restoring the blueback run to Suttle Lake, in spite of some difficulties and past failures (see later).

Possibility of restoring blueback to Suttle Lake takes on added significance in view of the proposed up-river dams and the geography of the Columbia Basin. Bluebacks must migrate to lakes if their young are to develop successfully under natural conditions. Upon the construction of Priest Rapids Dam on the mid-Columbia virtually the entire existing spawning areas now utilized by this valuable species may be eliminated. The only place in the entire Columbia

Basin which holds hope for the blueback salmon will then be the Deschutes, the Metolius and Suttle Lake. Suttle Lake stands as the sole remaining spawning area which may prove satisfactory for this species. It must not be denied to them.

By all indications the runs of salmon and steelhead passing up the Deschutes above the Warm Springs' mouth number about ten thousand fish.

Value

Rich (1942) has shown that the catch to escapement of spring chinook is roughly 5 to 1. The commercial catch of Metolius chinooks may, therefore, average about 25,000 fish or 418,000 pounds (at 16.7 pounds per fish). At $0.50 per pound (approximate first wholesale price), the annual value is roughly $209,000. Responsible anglers have indicated that the sport fishery for chinook is not great, being between 400 and 500 fish at Sherar's Falls each year. Total take is estimated to be 1,000 fish, of which some 600 are estimated to originate above the damsite, valued at roughly $17,500. Total value, then, is roughly $226,500 annually. [2215]

Best estimates place the run of steelheads past the proposed damsite (see below) at approximately 5,000 steelheads. Rich has shown that a catch to escapement of summer steelheads is roughly 2.25 to 1. This indicates a commercial catch of 11,250 fish, which at an average weight of 10 pounds per fish totals 112,500 pounds. At $0.50 per pound this places the commercial value of the steelhead populations affected at roughly $66,500 annually.

The value of the sport-caught steelhead is based

upon data that indicate that 25 to 100 anglers fish the Deschutes each day for steelhead during the season, the number generally being more nearly 100. By estimating 50 anglers per day and 0.5 fish per day for 75 days (August, September and to mid-October), an approximate take of 1,875 fish is obtained. An estimated 1,200 of those originated above the damsite, having an aggregate value of about $16,800 annually. The sport take from this run in the main Columbia brings the value up to at least $20,000.

The total annual value of the steelheads is, therefore, estimated to be about $86,500. Potentially this resource can be valued at a minimum of $500,000 annually.

Blueback salmon in the Metolius have an almost negligible value at present. Experience elsewhere, particularly at the Leavenworth station of the Fish and Wildlife Service, indicates that the bluebacks may well have a potential annual value of in excess of $700,000 if the Metolius remains open to them.

In summary, the present runs affected by proposed developments have at present an annual value in excess of $310,000. Potentially the runs have a value in excess of $2,200,000 annually.

Proposed Dams

Both the U. S. Bureau of Reclamation and private interests have considered [2216] constructing dams athwart the Deschutes below the mouth of the Metolius. One of the strongest proponents of a dam is a private corporation wishing to build a 150-foot

structure on the Deschutes about eight miles below the mouth of the Metolius. The site is particularly advantageous from their standpoint in that a dam can be constructed there is less than 18 months. In view of the present acute power shortage the time element appears—to them—important. The Fish Commission recognizes the problem, but feels that the short time gain would be much more than offset by the permanent loss of the important spring chinook, blueback, and steelhead runs.

If construction were to start immediately, the dam proposed by private power interests for the Pelton site, eight miles below the mouth of the Metolius, could produce power by as early as December of 1950. Within a very short time power will be made available at a number of other hydroelectric projects (Table 1). In a year or two the Metolius, Crooked, and part of the Deschutes Rivers will have been ruined for anadromous fish in the interest of a transient power shortage. The shortage is only a problem during some four months each year. For a total power-short period of about twelve months, then, the peerless spawning grounds of the Metolius are to be sacrificed.

This organization is aware that the Northwest is growing by leaps and bounds. It seems all the more important to nurture our fisheries in order that the expected large population may be able to enjoy these fine food fish and the unparalleled asset they represent.

Importance of Deschutes

The importance of the Deschutes River from the

standpoint of power and fisheries deserves consideration. This organization is not qualified to evaluate adequately matters pertaining to power. In addition, it concedes that fisheries values are based upon estimates that are not precise. [2217] Nevertheless, a study of the problem makes some factors self-evident.

Attention is drawn to Table 2, which compares the Deschutes project at the Pelton site with the Columbia basin as a whole from the standpoint of both power and fisheries. This is desirable in view of the regional character of the problem. Data presented are statistics of catch, estimates of catch, and power output as obtained from the U. S. Engineer's report on Columbia River and Tributaries, dated October 1, 1948.

At the present time the Deschutes area above the Pelton damsite (eight miles below the mouth of the Metolius) is estimated to produce roughly three per cent of the Columbia River catch. When the recommended and proposed Federal dams have been built the total catch in the river is expected to drop by at least 50 per cent and by building up the Deschutes area it may be expected to increase to roughly one-fifth of the total (other key streams remaining accessible to fish being the Kalama, Cowlitz, Klickitat and Willamette). The outlook, then, is that within a decade or two the Deschutes, as it exists today, may be expected to produce one-fifth of the entire Columbia River catch of anadromous fish. If the proposed Deschutes Dam is built, that barrier's 75,000 kilowatts will amount to less than

one per cent of the total Columbia basin production. Looking ahead, the proposed Deschutes project is not important from the standpoint of power; it will be vitally important to the fisheries.

Fishways

Whenever a dam is proposed, the matter of fishways arises. Fishways take a variety of forms at dams, such as gravity ladders, elevators, and lifts. In most instances the most serious delays of salmon below obstructions occur because the fish have difficulty finding the ladders. This particular difficulty could probably be overcome at the Deschutes dam if adequate attention were given to design. [2218]

Regardless of possibilities of attracting salmon to fishways, two serious drawbacks to fishways at the Deschutes dam will render their use impossible. In the first place, gravity ladders, which are the most successful type now known, have never passed runs of Pacific salmon over dams of 150 feet in height. The Bonneville fish ladders are the most successful known and the total head there is about 62 feet, less than half that at the Deschutes dam. Even if some sort of experimental lift proved practicable with regard to the adults, it could not be utilized at this dam. Downstream migrants resulting from spawning above the dam may be expected to experience virtually one hundred per cent mortality in dropping down past the structure. This is all the more true because we are told that operational plans call for no spillway discharge during most of the year. The young salmon must pass through the draft tubes. Even if there were no mechanical in-

jury in passing the turbines (which is unlikely), the almost instantaneous pressure change may be expected to be fatal to virtually the entire population of downstream migrants. For the above reasons the Deschutes dam must be considered impassable.

Artificial Propagation

According to law, when an impassable dam is built on a salmon stream the builders are required to erect a hatchery to take care of the runs so blocked. Presumably, they are prepared to do this on the Deschutes. What, then, is the outlook for our salmon runs? The immense productivity of the Metolius, Crooked, and Deschutes above the dam will be unavailable to the present good populations and the anticipated large populations of salmon. And who will pay for the operation of the hatchery? Not the power company! The people of the State of Oregon must pay. With the transference of upper river runs to the Metolius being a necessity, and practical under present circumstances, what will the cost of operation be in view of the proposed [2219] dam? It may well cost half the entire present appropriation of the Fish Commission.

One of the sources of most serious loss in propagating spring chinook salmon and fall migrating steelhead, particularly, is loss of adult fish while impounded in order that their sexual products mature. While losses of adults in Fish Commission hatcheries are normally not great, they have been as much as 57 per cent in areas where the fish had to be held for prolonged periods in unsatisfactory

river sections. In the above instance the salmon were held adjacent to the spawning grounds. When trapped and held many miles below the spawning grounds, the losses may be much greater. They will certainly be serious. This factor alone renders the success of any hatchery program questionable.

Transference of Runs

There have been several attempts to transfer salmon runs from one region to another, and it is pertinent to consider that possibility with regard to the Deschutes dam. To begin with, there is, assuredly, a slim chance that all of the salmon runs now passing above the proposed damsite on the Deschutes could be transferred to the Warm Springs River. The bluebacks, of course, must have access to a lake for natural spawning, and there is no known suitable and accessible lake in the Warm Springs watershed. That species, then, probably must be not only transplanted but handled in hatcheries forever.

Consider the steelheads and chinook salmon. There have been attempts at transfers of adults to non-native tributaries in the upper Columbia and Sacramento Rivers. In all cases there have been abnormal losses. Dr. Fish summarized the problem very well in his paper, "The Retention of Adult Salmon with Particular Reference to the Grand Coulee Fish Salvage Program" (p. 26). In that article he stated: "Artificial propagation often is considered to be a panacea to all salmon salvage programs. Salmon propagation has been [2220]

employed along the West Coast since 1872, yet the salmon resources—as a whole—have been decreasing steadily. Propagation of the fall chinooks of the Columbia River, which are sexually mature upon their arrival at the spawning grounds, has been conducted without serious pre-spawning loss of adult fish. The notable success of the U. S. Fish and Wildlife Service at Spring Creek and the Washington State Department of Fisheries on the Kalama River offer convincing evidence that the propagation of fall chinooks can be remarkably successful. The earlier-running 'spring' salmon, which require a period of one to five months in fresh water for the ripening of their sexual elements, have not proved so amenable to artificial propagation. So long as the earlier-running salmon encounter no serious obstructions during their migrations and are confined at—or—near their native spawning grounds during the ripening period, the pre-spawning losses generally remain satisfactorily low. However, when impassable barriers necessitate trapping and hauling the fish, the results frequently have been unsatisfactory. Past attempts to retain salmon under such conditions have been marked both with success in certain instances and virtually complete failure in others.

"The majority of the dams that have been proposed for West Coast streams will require a salvage program involving trapping and retaining adult fish. The successes attending certain past attempts conclusively demonstrate that it is possible to retain

salmon to maturity in a foreign environment if certain conditions are met. The failure of other attempts, however, sounds a definite warning against unconsidered action in future programs. The successful retention of the early-running salmon during their ripening period constitutes one—if not the most—critical phase of salmon management.

"The effects of injuries upon the losses sustained during the ripening period is far too important an item to be overlooked in future salvage programs. Potential sources of injuries must receive serious consideration [2221] when planning and designing future projects and must be eliminated so far as possible. Where trapping and transportation of adult fish is involved, and injuries therefore are largely unavoidable, the holding sites must be selected with a view to minimizing the consequences of the injuries. This must be done even at the expense of losing otherwise more desirable locations."

The history of fish culture is replete with unsuccessful attempts to transfer runs by introducing young salmon into non-native tributaries. Millions of spring chinook have been shipped to our own Bonneville Hatchery and liberated there, but there is no run there today. Other millions were planted in coastal streams with almost no success. In the Metolius area itself some 20,000 blueback salmon were planted in 1943, with almost no return. Although methods have improved, it is safe to say that even now there are more failures than successes.

Obviously, transferring the runs passing the Deschutes damsite to the Warm Springs River will be fraught with difficulty at best. Furthermore, it will be expensive—an expense that must be borne by governmental agencies. Transference of runs is a last resort.

No one should be misled into thinking that transference of runs—even when successful—is an adequate solution to the problem of maintaining the Columbia River fishery.

Loss of the stream areas above the proposed dam must be measured not only in terms of present fish life but in available spawning and feeding areas. The productive capacity of areas lost by erection of a dam cannot be replaced.

History of Effects of Dams

The history of the erection of dams in the Columbia Basin involves a long list of barriers which totally and unnecessarily destroyed one resource [2222] to exploit another. Many were built on the Yakima River system, originally one of the most important salmon producers in the Columbia Basin. Storage reservoirs were constructed by the U. S. Bureau of Reclamation at Lake Keechelus, Lake Kachess, Cle Elum, Bumping Lake, Tieton, Easton and Clear Creek. In addition to the Sunnyside diversion dam, the Wapato, Prosser, and Rosa divesions were built and put into operation. During the period of construction of each of these dams, the loss of migrating salmon was heavy. Dams in many cases were not provided with fish ladders and

entire former runs above these structures were wiped out. Approximately 65 per cent of the few fish ladders built were not constructed until some years after the dam was completed.

The situation is similar in other parts of the basin. The salmon runs of the upper Boise River were completely blocked by the construction of the Boise diversion canal dam in 1907-09 and the Arrowrock dam in 1911-16. The runs below were exterminated. Construction in 1923-24 of the Black Canyon dam without fish protective devices barred anadromous fish from the principal spawning grounds of the Payette River and thus exterminated all of the runs above that point. Capitalized at four per cent, the estimated value of Payette and Boise River runs which were destroyed is not less than $60,000,000.

Other dams destroying entire runs above them include those on the Malheur, Burnt, Powder and Owyhee Rivers.

The story at private power projects is similar, and is particularly discouraging as regards spring chinook salmon and steelhead trout, the species most vitally affected on the Deschutes. At Ariel Dam, on the Lewis River, cooperation of the power company and the Washington State Department of Fisheries was instrumental in aiding the survival of silver salmon, but spring chinook salmon have almost disappeared. At Marmot Dam, on the Sandy [2223] River, so much water is diverted that downstream migrating salmon and steelhead have been

seriously decimated. The runs of spring chinook salmon have almost disappeared. Recognizing the danger to downstream migrants at the unscreened diversion, the Fish Commission endeavored to hold the adults below the dam, artificially spawn them, and then plant the young below. To date this effort has been a failure, and the experience gained there should sound a warning to anyone who is optimistic about the possibilities of salvaging the Deschutes and Metolius runs by artificial propagation.

Even at the Grand Coulee project, which is assuredly one of the most thorough yet undertaken, "the overall success obtained from artificial propagation during the initial seven-year period * * * has been only fair at best." (Quotation from "A Report upon the Grand Coulee Fish-Maintenance Project 1939-1947," by Fish, F. F., and Hanavan, M. G., Special Scientific Report No. 55, Fish and Wildlife Service, page 29).

Discussion

The outlook of a Deschutes with a dam is dismal indeed. The Metolius in its present state can definitely be built up by careful management. In view of the decline of certain races of Columbia River salmon, the accomplishments of management in building up the runs are not well known. A case in point is the blueback salmon run that passes Rock Island Dam. Teamwork involving the use of the most advanced methods of artificial propagation now known by the U. S. Fish and Wildlife Service and severe fishery restrictions imposed by this

organization and the Washington State Department of Fisheries brought about fantastic increases in the blueback run in question. Blueback salmon in the Columbia are largely four years old at maturity. Compare, then the Rock Island migration in 1944 and 1948. In the former year 4,932 bluebacks surmounted the ladders at that dam. The following cycle the run had jumped to 84,574 fish, an increase of more than one thousand [2224] seven hundred per cent! Without question, the runs of salmon can be built up if the construction of such dams as the projected one on the Deschutes is stopped before it begins.

It is important to the economy of this region to care for its fisheries resources. The Metolius must and can be built up by the management and possibly transplants from the superb upper Columbia and Snake River stocks. The Deschutes in that area and the Metolius and Crooked Rivers must not be rendered barren of anadromous fish life. The Lower River Plan must not fail.

The Fish Commission of Oregon, therefore, opposes the construction of dams on the Deschutes athwart the migratory paths of anadromous fish and protests, in particular, the construction of a dam at the Pelton site, which is some eight miles below the mouth of the Metolius.

ARNIE J. SUOMELA,
Master Fish Warden,

June, 1949. [2225]

Table 1

Additional Power Developments
to be Installed by End of 1950*
Columbia Basin Region

Project	Power Output Kilowatts	Date of Installation and Power Production	
Federal			
Grand Coulee	108,000	April	1949
	108,000	July	1949
	108,000	October	1949
	108,000	April	1950
	108,000	July	1950
	108,000	October	1950
Anderson Ranch	13,500	March	1950
	13,500	May	1950
Total federal	675,000		
Non-Federal			
Idaho Power Company	121,800		1949-50
Montana Power Company	56,000		1949
Pacific Power & Light (Merwin)	45,000		1949-50
City of Eugene	27,000		1949
City of Bonners Ferry	1,200		1949
Total Non-federal	251,000		
Grand Total, additional power within the time Deschutes Dam can be constructed	926,000		

* Advance Program of Transmission System Development, Bonneville Power Administration, U. S. Dept. of Interior, dated December 1948. [2226]

Table 2

Importance of Deschutes Project to Columbia Basin Power Output Compared with Importance of Deschutes Area Above Damsite to Salmon Production in Columbia River Basin.

	Present	Present Potential	Future Potential
Columbia Basin			
Power Output of Basin[1]	2,081,730 KW[2]	4,135,730[3]	8,593,930[4]
Fisheries Output of Basin	20,000,000 pounds	50,000,000	10,000,000
Deschutes River at Pelton Site			
Power Output at Pelton Site	0	75,000KW	75,000KW
Fisheries Output above Pelton Site	550,000 pounds	3,000,000	2,000,000
Deschutes Pelton Project with Relation to Columbia Basin			
Power Output	0%	1.81%	0.87%
Fisheries	2.8%	6.0%	20.0%

[1] Does not include important sources of Northwest power not in the Columbia Basin (e.g., Seattle and Tacoma plants), nor Columbia Basin projects in Canada.

[2] See Review Report on Columbia River and Tributaries, Main Section, page LL-74, dated October 1, 1948.

[3] Present plants plus plants now under construction.

[4] Federal Power under C-2 System plus non-Federal units existing and under construction. (Also includes erection of dams above mouth of Metolius.)

F.P.C. Received June 14, 1949. [2227]

June 15, 1949

The Honorable
The Secretary of the Interior
Washington 25, D. C.

Dear Sir:

Northwest Power Supply Company, of Portland, Oregon, has filed with this Commission an application for a license for a proposed water-power project (No. 2030) which would be located on Deschutes River in Jefferson County, Oregon, and affect vacant public lands, tribal and allotted lands within Warm Springs Indian Reservation, and lands under the administrative jurisdiction of the Soil Conservation Service.

The proposed project, designated as the Pelton power project, would consist of a concrete arch dam approximately 190 feet high with crest length of about 850 feet; a separate spillway structure upstream from the dam discharging water into the river below the dam through a tunnel; a reservoir approximately 7.2 miles long with capacity of 26,000 acre-feet and surface area of 460 acres; penstocks; a powerhouse immediately downstream from the dam containing two 52,000-horsepower turbines connected to two 40,000-kilovolt-ampere generators; a switchyard; transmission lines from the switchyard to points of connection with the existing Madras-Cove and Madras-Maupin transmission lines of Pacific Power & Light Company, distances of approximately 5 miles and 7 miles, respectively; and appurtenant facilities.

A copy of the application, with exhibits other than maps and drawings, is attached, and a set of prints of the maps and drawings listed below is being sent to you under separate cover:

Exhibit J: (F.P.C. No. 2030-1).

Exhibit K: (F.P.C. No. 2030-2).

Exhibit L-1 to Exhibit L-8, inclusive (F.P.C. Nos. 2030-3 to 10, inclusive).

In accordance with the provisions of section 4(e) of the Federal Power Act, you are invited to report whether the license, if issued, would interfere or be inconsistent with the purpose for which any reservation [2229] under your supervision was created or acquired, and to state the conditions which are deemed necessary for the adequate protection and utilization of any such reservation.

It is requested that you give the Commission your views as to the measures which should be taken to protect wildlife resources in connection with the project in accordance with the provisions of Public Law 732, 79th Congress, 2d session, approved August 14, 1946. Your advice concerning fishways is also requested pursuant to the provisions of section 18 of the Federal Power Act, 16 U.S.C. 811.

You are also invited to report otherwise on the application to the extent that you may deem desirable.

If no response is received within 90 days from

the date of this letter, it will be assumed that you do not desire to submit any comments.

Very truly yours,

LEON M. FUQUAY,
Secretary.

2 Enclosures: No. 5714—Copy of application; No. 5715—10 prints under separate cover).

LP ARH:cjp 5/31/49

cc: The Secretary of the Interior, San Francisco Regional Office, Supervising Commissioner, Bureau of Law, Division of Licensed Projects.

United States of America
Federal Power Commission
Project No. 2030

June 17, 1949

In the Matter of Northwest Power Supply Company.

NOTICE OF APPLICATION FOR LICENSE (MAJOR)

Public notice is hereby given pursuant to the provisions of the Federal Power Act (16 U.S.C. 791a-825r) that Northwest Power Supply Company, of Portland, Oregon, has made application for license for proposed major Project No. 2030 (Pelton Project) to be located on the Deschutes River in Jefferson County, Oregon. The proposed project would affect lands of the United States, including tribal and allotted lands within Warm Springs Indian

Reservation and lands under the administrative supervision of the Soil Conservation Service, and would consist of a concrete arch dam approximately 190 feet high with crest length of about 850 feet creating a reservoir about 7.2 miles long with capacity of 26,000 acre-feet and surface area of about 460 acres; a separate spillway structure upstream from the dam discharging water into the river below the dam through a tunnel; penstocks; a powerhouse immediately downstream from the dam containing two 52,000-horsepower turbines connected to two 40,000-kilovolt-ampere generators; a switchyard; two transmission lines from the switchyard to points of connection with the existing Madras-Cove and Madras-Maupin transmission lines of Pacific Power & Light Company, respectively; and appurtenant facilities.

Any protest against approval of this application or request for hearing thereon, with the reasons for such protest or request, and the name and address of the party or parties so protesting or requesting should be submitted [2233] on or before August 1, 1949, to the Federal Power Commission, Washington 25, D. C.

LEON M. FUQUAY,
Secretary. [2234]

June 17, 1949

Hydroelectric Commission of Oregon,
Salem, Oregon.

Re: Northwest Power Supply Company,
Project No. 2030.

Gentlemen:

There is enclosed a copy of the Notice of Application for License dated June 17, 1949, in the above entitled matter.

Very truly yours,

LEON M. FUQUAY,
Secretary.

Enclosure Registered.

Same letter sent Registered to:

County Court, Jefferson County, Madras, Oregon.

The Mayor, Madras, Oregon.

Div. of Water Resources, Dept. of Conservation and Development, State of Washington, Olympia, Washington.

Columbia Basin Comm., State of Washington, Ephrata, Washington.

Oregon State Game Comm., 1634 S. W. Alder, P.O. Box 4136, Portland 8, Oregon.

"For Your Information" letter sent to:

Senators Guy Cordon and Wayne L. Morse--Oregon.

Representatives Lowell Stockman and Walter Norblad—Oregon.

Copy of Notice sent to:

Thomas M. Robins, Director & Pres., Northwest Pwr. Supply Co., 510 Elec. Bldg., Portland 5, Oregon.

Pacific Pwr. & Light Co., 920 S. W. Sixth Ave., Portland, Oregon.

Off. of Indian Affairs, Secy. of Interior, Washington, D. C.

Soil Conservation Serv., Dept. of Agriculture, Washington, D. C.

James H. Cellars, Secy., Columbia River Salmon & Tuna Packers Assn., Astoria, Oregon.

(4) Chief of Engineers, Dept. of the Army.

David B. Charlton, Director, Izaak Walton League of America, P. O. Box 1048, Portland, Oregon.

J. W. Penfold, Western Representative, Izaak Walton League of America, Inc., 327 C. A. Johnson Bldg., Denver 2, Colorado.

John C. Veatch, Chairman, Fish Comm. of Oregon, 510 Gov. Bldg., Portland 4, Oregon.

cc: Reg. Off: San Francisco: Law: Pubs: Lic. Projects.

ES:ng—6 17/49 [2235]

Federal Power Commission
Washington 25

June 17, 1949.

Public Utilities Commissioner of Oregon,
Salem, Oregon.

Re: Northwest Power Supply Company,
Project No. 2030.

Gentlemen:

Pursuant to the provisions of the Commission's rules of practice embodying the Plan of Cooperative Procedure with State Commissions, your attention is invited to the above-designated proceeding which is now pending before this Commission and which is more fully described in the enclosure.

This Commission will be pleased to have your Commission notify it whether you deem the proceeding one which should be considered under the cooperative provisions of the Plan. If so, the Commission will be glad to be advised as to the nature of your interest in the matter and as to whether you desire a conference, the creation of a board, or a joint or concurrent hearing, and the reasons for such request. Upon receipt of your request, the Commission will give it careful consideration and communicate with you promptly, offering any suggestions which it feels might facilitate cooperation with your Commission in the public interest.

If your Commission should feel that this proceeding is not one in which it would be advantageous to invoke the cooperative provisions of the Plan this Commission would nevertheless appre-

ciate receiving from you any comments or suggestions of any kind which you think might be helpful to it in its consideration of the matter.

Unless we hear from you by August 1, 1949, we will assume that you have no representations to make in the premises.

Very truly yours,

LEON M. FUQUAY,
Secretary

Enclosure Registered: (Copy of Notice of Application for License dated June 17, 1949.)

cc: Reg. Off.: San Francisco; Law; Pubs: Lic. Projects.

ES:ng—6/17/49 [2236]

Federal Power Commission
Washington 25

Hon. Douglas McKay, June 17, 1949
Governor of Oregon,
Salem, Oregon.

Re: Northwest Power Supply Company,
Project No. 2030.

My dear Governor:

Your attention is invited to the above-designated proceeding which is now pending before this Commission and which is more fully described in the enclosure.

The Commission will be glad to receive any comments or suggestions you may desire to submit in connection with this matter.

Unless we hear from you by August 1, 1949, we will assume that you have no representations to make in the premises.

Notice of the proceeding has also been sent to the regulatory commission of your State.

Very truly yours,

LEON M. FUQUAY,
Secretary.

Enclosure Registered: (Copy of Notice of Application for License dated June 17, 1949.)
cc: Reg. Off.: San Francisco; Law; Pubs; Lic. Projects.
ES:ng—6/17/49 [2237]

Columbia River
Salmon & Tuna Packers Association
Astoria, Oregon

Air Mail June 22, 1949.
Federal Power Commission,
Washington, D. C.

Re: Project No. 2030.

Gentlemen:

The Columbia River Salmon & Tuna Packers Association, of Astoria, Oregon, wishes at this time to make a formal protest to the Federal Power Commission against granting the application of the Northwest Power Supply Company, of Portland, Oregon, to erect a dam on the Deschutes River in Jefferson County, Oregon.

The Columbia River Salmon & Tuna Packers Association's membership catches, processes or distributes approximately 90 per cent of the fishery products harvested in the Columbia River area. The principal product handled is salmon. The canned salmon pack on the Columbia River has a value of approximately $15,000,000 per year. The fishery resource which produces this pack is in danger of being decimated and destroyed through losses occasioned by the erection of high multiple-purpose dams on the Columbia River in connection with the Federal program for the development of the Columbia Basin resources.

Realizing this danger, the Government agencies engaged in the carrying out of this program have adopted a plan in an attempt to save this fishery resource. This plan calls for rehabilitation and development as salmon spawning streams all Columbia River tributaries lying below McNary Dam site. The Deschutes River is one of these tributaries, and is regarded by fishery biologists as one of the most valuable for salmon breeding purposes. If this stream is dammed as proposed in Project No. 2030, its value to the fishery resource will be completely destroyed and the entire lower river rehabilitation program upset.

In view of the fact that the Federal Power Commission, through its representatives, has been a party to the development of a Lower Columbia rehabilitation plan through the Columbia Basin Inter-Agency Committee, we feel that your Commission has all available data and information at

hand and that it is not necessary to present detailed and statistical arguments in this matter. [2241]

We urge your serious consideration of this problem, and earnestly hope that your decision will be to deny this application.

Yours very truly,

COLUMBIA RIVER SALMON &
TUNA PACKERS ASSOCIATION
/s/ By JAMES H. CELLARS,
Secretary.

JHC:J

F.P.C. Received June 24, 1949. [2242]

Geo. H. Flagg
Public Utilities Commissioner of Oregon
Salem

Federal Power Commission, June 24, 1949
Washington 25, D. C.

Attention: Mr. Leon M. Fuquay, Secretary.

Gentlemen:

This will acknowledge your letter of June 17th and copy of Notice of Application for License by the Northwest Power Supply Company, Project No. 2030.

To the extent that the proposed project will make available in Oregon an additional supply of electric energy, this Department is very much interested, and therefore appreciate your kind offer to consider the application under the cooperative plan

adopted by your Commission. We do not feel that a joint or concurrent hearing with respect to the project is essential, but trust that you will kindly keep this Department advised with respect to the status of the application now before your Commission.

Very truly yours,

/s/ GEO. H. FLAGG, Commissioner.

GHF:GH

F.P.C. Received July 5, 1949. [2243]

State of Oregon

Office of the Hydroelectric Commission of Oregon

Salem

Federal Power Commission, July 7, 1949

Washington 25, D. C.

Attention: Mr. Leon Fuquay, Secretary, Re: Project No. 170.

Gentlemen:

Enclosed you will find an order of the Hydroelectric Commission of Oregon, relating to the application of the Northwest Power Supply Company for a preliminary permit for a hydroelectric project on the Deschutes River in Jefferson County.

Very truly yours,

HYDROELECTRIC COMMISSION OF OREGON,

/s/ CHAS. E. STRIC[illegible] Secretary.

DJM:RN ENCL.

F.P.C. Received July 15, 19[illegible] [2244]

[Letterhead of Izaak Walton League of America, Inc.]

Mr. Leon M. Fuquay, July 28, 1949
Secretary, Federal Power Commission,
Washington, D. C.

Re: Proposed Dam—Pelton Site, Deschutes River, Oregon, Northwest Power Supply Co., Project No. 2030.

Dear Sir:

This letter constitutes (1) a protest to issuance of a license to the Northwest Power Supply Co. for the construction of a power dam at the Pelton Site, on the Deschutes River, Oregon, (2) a request that a public hearing be held in Portland, Oregon, or the vicinity, prior to formulation of a decision by the Commission, for the purpose of providing opportunity for all pertinent facts, implications and effects of the proposed construction to be brought out and (3) a request that the Izaak Walton League of America, Inc., have the privilege of appearing and/or filing a statement at such a hearing.

The Izaak Walton League of America, Inc., has a history over the past 27 years of unselfish interest and action in behalf of the conservation and wise use of all natural resources. Consequently, the Oregon Division and the national organization of the League have a bona fide interest and concern in this proposed project.

It has been made evident, by formal statements of the Oregon Fish Commission, the Oregon Game Commission and by ruling of the Oregon Hydro-electric Commission, that the proposed structure, with an over-all height of approximately 175 feet and a head of 150 feet, will prevent any migration of anadromous fish either up or down stream, and so destroying the value of spawning beds in the Deschutes and Metolius. Further, that operation of dam and reservoir in order to develop power for peak periods will occasion frequent and drastic fluctuations of the stream below the dam, which fluctuations will have serious and cumulative effect on fish life below the dam and actually constitute a hazard to the lives of fishermen. Further, that the natural spawning beds rendered valueless can not be replaced through operation of a fish hatchery below the damsite.

It is evident that grave economic losses will result to the salmon fishing industry and grave loss likewise to the sport fishery. Nor would this latter loss be compensated for by any recreation potential around the reservoir, as large, almost daily fluctuations in water level will preclude the possibility of developing an attractive site or maintaining a fish population. [2247]

It would appear that electric power produced by the proposed project would contribute in the present power shortage but for a brief period, and as other projects now under construction in the Columbia Basin come into operation the contribution of the Pelton project would be insignificant.

On the other hand, the Deschutes and the Metolius are becoming of increasing importance to the salmon fisheries because of dams already built, in process of construction or approved for construction in the Columbia Basin, with approximately 70% of the original salmon and steelhead waters already destroyed.

In summary, it appears evident that construction and operation of this project will contribute little of long range value to the area, but to the contrary will destroy much that is now of great value and will be of increasing value during the years to come.

It is hoped that all consideration will be given by the Commission to this protest and request.

Respectfully yours,

/s/ J. W. PENFOLD,
Western Representative.

F.P.C. Received Aug. 1, 1949. [2248]

[Letterhead of Izaak Walton League of America, Inc.]

Via Air Mail July 29, 1949

Project No. 2030

Federal Power Commission,
Washington, D. C.

Gentlemen:

Regarding application, Northwest Power Supply Company, to build dam at the Pelton site on the Deschutes River in Oregon. The Oregon Division

of the Izaak Walton League of America submits herewith a brief summary of objections to the above application:

(1) Granting this application would be a violation of the pact made between the Federal Government and the States included in the Columbia River Basin for the development of the fisheries industry on the lower Columbia below McNary Dam.

(2) The Deschutes and its tributary, the Metolius River, constitute the most important segment in the future preservation and development of the Columbia River fisheries.

(3) The building of a dam at the Pelton site would result in a blight on what has been one of the nation's finest recreation areas.

(4) Recreation and tourist travel constitutes one of Oregon's greatest resources.

(5) A dam at the Pelton site for the development of limited amount of power would take water needed for irrigation. Water used in that location for power could not be used for irrigation in Central Oregon.

(6) Trading the Deschutes River for a small amount of power needed for one year at the most is too great a price to pay. [2249]

(7) Federal power from dams on the Upper Columbia available with one year at the most after this dam would be completed, will more than supply all the needs of Central Oregon.

(8) The Oregon State Fish Commission has legal rights it refuses to yield, which make it impracticable to build the dam.

(9) Prior rights for irrigation do not leave enough water to make the project feasible.

(10) No permit should be issued until the applicant has made necessary arrangements with the Indians and Reclamation Services.

(11) The Detroit Dam on the North fork of the Santiam River now under construction and due to be in production by June 1, 1953, will provide nearly three times as many kilowatts as the Pelton Dam. This is in addition to the power from the dams on the Upper Columbia, all of which will be tied into the same grid.

We are attaching hereto an order issued on July 1st by the Hydroelectric Commission of Oregon, denying the application of the Northwest Power Supply Company to build this dam.

Also enclosed is various data regarding this project.

Under separate cover, we are mailing you a partial but rather imposing list of organizations opposed to the building of this dam.

Respectfully yours,

OREGON DIVISION
Izaak Walton League of America
s/ By ED F. AVERILL.

EFA:r Encls.

F.P.C. Received Aug. 1, 1949. [2250]

Northwest Power Supply Company
510 Electric Building, Portland 5, Oregon

December 19, 1949.

Mr. Leon M. Fuquay, Secretary,
Federal Power Commission,
Washington 25, D. C.

Dear Mr. Fuquay:

In reply to your letter of November 14, 1949, requesting additional information in regard to the proposed Pelton Project, Oregon (No. 2030), the following is submitted.

It is proposed to develop a head of 150 feet at the Pelton site either by tailrace excavation or by raising the dam, depending on which method is found to be most practicable and economical after additional surveys and borings can be made. If tailrace excavation should be the method adopted, it is possible, but not probable, that this work would be deferred until after the plant is placed in operation.

With normal utility financing, I concur in the assumptions of the Commission staff that annual fixed charges would be about 9 per cent of the capital investment. However, it is probable that a large part of the money can be borrowed from insurance companies. On this basis the amortization period would be 30 years and the annual fixed charges would vary from about 8.5 per cent for the first year to about 6 per cent for the last year. Our estimate of the cost of ordinary operation and maintenance is about $[illegible] per year. What

amount must be added to this on account of facilities for preservation of fish is still unknown, but will be considerable.

Capacity and energy losses involved in delivery of power from the Pelton project to the transmission networks of the Bonneville Power Administration and Pacific Power and [2251] Light Company would be nominal. An overall reduction in line losses within these transmission networks should result from their interconnection with the Pelton Project. To date we have been unable to obtain from the Bonneville Power Administration an estimate of the wheeling charge that would be imposed. In our opinion, this charge should not exceed one-half mill per kilowatt hour.

The elevation of the normal river level at Metolius dam site is about 1550 feet. The normal pool level for the Pelton Project as proposed with tailrace excavation is 1563 feet. Accordingly, there would be backwater at the Metolius site of about 13 feet. If and when the Metolius project is constructed, a reduced head could be used there or at the Pelton project. Construction of the Pelton Project at this time for operation with a normal pool 13 feet higher than that authorized in license for Project No. 57 is believed to be fully justified by the urgent need of more power for the region.

Very truly yours,

s/ THOMAS M. ROBINS,
President.

F.P.C. Received Dec. 22, 1949. [2252]

Supplement to Application for License Northwest Power Supply Company, Pelton Power Project, Deschutes River, Oregon, F.P.C. Project No. 2030. (Original Application Filed May 23, 1949.)

Before the Federal Power Commission

APPLICATION FOR LICENSE

(1) The Northwest Power Supply Company, a corporation organized under the laws of the State of Oregon, and having its office and principal place of business at Portland, in the State of Oregon, hereby makes application to the Federal Power Commission for a license to authorize the construction, operation, and maintenance of certain project works fully described herein.

(2) The name, title, and post office address of the person to whom correspondence in regard to this application shall be addressed, is as follows: Thomas M. Robins, Director and President, Northwest Power Supply Company, 510 Electric Building, Portland 5, Oregon.

(3) The applicant is a corporation and is organized under the following laws: The laws of the State of Oregon.

(4) The measure of control or ownership exercised by the applicant in any other organization or over applicant by any other organization is as follows: None. [2254]

(5) The applicant operates and/or proposes to operate in the following states: The State of Oregon.

(6) A concise general description of the project and the principal project works is as follows:

(a) Dams and Reservoirs:

The dam will be of the concrete arch, variable radius type, with gravity thrust blocks or abutments at both ends. It will be approximately 190 feet high, 10 feet thick and 850 feet long at the crest, and 47.5 feet thick at the base. These dimensions are based upon a preliminary arch-dam analysis. Additional exploration work is contemplated to determine the location of foundation rock on the abutments. After this is done, additional analysis will be made before laying out construction drawings, but the analysis already made clearly indicates that a thin arch dam of approximately these dimensions may be designed for this site.

The reservoir is a long narrow reservoir in the Deschutes River Canyon, being approximately 7.2 miles long and less than one-quarter of a mile wide at the widest point. The reservoir will be approximately 150 feet deep at the dam.

A reregulating reservoir will be provided to reregulate the discharge from the units and iron out the stream flow to provide a relatively uniform flow below the project approximating the natural condition. This reservoir will be formed by a concrete gravity reregulating dam located about three miles downstream from the main dam. The pond elevation will be [1]411, or just slightly below the normal tailrace elevation at the powerhouse. Four 18′ long by 20′ high tainter gates will be provided to regulate the discharge from the reregulating

reservoir, and to pass the flood flows. Provision will be made for catching fish for transportation to a fish hatchery as indicated on Exhibit L-9.

Fish facilities: Besides the reregulating dam described in the preceding paragraph, which is primarily for the protection of fish, it is proposed to spend up to $1,000,000 for the following fish facilities: (a) an egg taking station with holding ponds and adequate water supply at the site of the reregulating dam, including a caretaker's cottage and other necessary buildings; (b) fish traps in the reregulating dam and a fish ladder leading from the traps to the holding ponds; (c) expansion of the Metolius hatchery or the construction of a new hatchery wherever desired by the Fish Commission of Oregon; (d) trucks for the transportation of eggs and fingerlings; (e) whatever land may be needed for the foregoing.

(b) Water Conduits:

The only water conduits involved are the penstocks from the dam to the turbines in the powerhouse. The penstocks are 16 feet in diameter and approximately 135 feet long from the upstream face of the dam to the turbine inlet.

(c) Powerhouses, Substations, Switchyards:

The powerhouse will be immediately downstream from the dam, and as close to the dam as possible. It will be of the outdoor type with the generators housed in a metal cover, and will be serviced by a gantry crane. There will be three transformers, 13.2 kv to 230 kv, located just upstream from the gantry crane and at the same level as the deck

or generator floor. Transfer tracks will be provided for moving the transformers under the gantry crane, and an untanking hatch will be provided in the erection or service bay at the east end of the powerhouse.

Three units will be installed in the powerhouse, each having [2256] a capacity of 52,000 hp or a total of 156,000 hp, based upon guaranteed output by the turbine manufacturer. The expected output of each unit is 55,000 hp. Each turbine will operate a generator of 36,000 kw rated capacity.

Substations will be provided where the transmission lines from the plant connect with existing transmission lines of the Central Oregon Transmission System of the Pacific Power and Light Company, more fully described under (d), below.

Switchyards: On account of the cramped space in the narrow canyon, no switchyard is planned at the powerhouse. Instead, the main step-up transformers will be placed between the powerhouse and the dam, and a switchyard, consisting principally of oil circuit breakers, and accessories, will be placed at the rim of the canyon near the plant.

(d) Transmission Line:

Transmission line will extend from the switching station at the rim of the canyon near the power plant to connect with existing transmission lines, as shown on the General Map, Exhibit J.

One 230-kv transmission line will extend from the Pelton switching station at the rim of the canyon, almost due eastward approximately seven (7) miles to connect to the existing Madras-Maupin

line which is also a part of the Central Oregon Transmission System of the Pacific Power & Light Company. The Madras-Maupin line is now operated at 69-kv but is being changed over to 230-kv operation by the Bonneville Power Administration system.

The above described transmission line and interconnection has been discussed with the Bonneville Power Administration, and negotiations are now under way for an interchange agreement.

(7) The location of the project applied for is as follows: [2257]

(a) In the State of: Oregon.

(b) In the County of: Jefferson.

(c) On the following named stream:

Deschutes River, carrying commerce to the following extent: None.

(d) In the region of the following named cities and towns: Madras, Oregon.

(8) Lands of the United States which will be affected are located in:

A power site reserve previously withdrawn from entry by the Federal Government. The power site reserve is bounded on the west side by the Warm Springs Indian Reservation. A complete description of the lands involved is contained in Exhibit F.

(9) The proposed scheme of development for the project is as follows:

Three units will be installed, each with a rated turbine capacity of 52,000 hp and a rated generator capacity of 40,000 kva.

The flow available 90% of the time, as shown on the Flow-Duration Curve, Exhibit L-7, is 3,600 cfs. The corresponding power available 90% of the time is 55,200 hp. or 39,000 kw.

The Flow-Duration Curve, Exhibit L-7, is subject to modification in the future by virtue of prior right appropriation for water for irrigation. (See also Exhibit H.) This appropriation for irrigation, however, will not affect the peaking capacity of the plant. It may reduce the power available 90% of the time slightly, and might reduce the annual energy output from 375,000,000 kwh to about 325,000,000 kwh.

The yearly output of energy, based upon the Flow-Duration Curve, Exhibit L-7, showing average stream flow for the last twenty-five (25) years of continuous record is estimated to be 375,000,000 kwh. This figure takes [2258] into account the waste over the spillway, and also the reduction in head occasioned by average drawdown in the reservoir during operation. The maximum drawdown will probably be from 8 to 10 feet.

The three units will develop the full power available from the stream flow except for 2% of the time (See Flow-Duration Curve, Exhibit L-7) when the flow exceeds 10,300 cfs, which is the maximum capacity of the turbines.

The transmission line which will be initially constructed as part of the project is described in Section 6 (d).

The location and capacity of future additional

transmission lines will be based upon load conditions at that time.

(10) The proposed use or market for the power to be developed is as follows:

The entire output of the plant will be used in the Portland General Electric Company's system.

(11) The location, a brief description, and capacity of all power plants, or other electric facilities owned or operated by the applicant, the market supplied thereby, and the relation thereof to the project applied for are briefly described as follows:

None.

(12) The following exhibits are filed herewith and are hereby made a part of this application:

Exhibit A—No change from Exhibit A in original application which is hereby made a part hereof.

Exhibit B—No change from Exhibit B in original application which is hereby made a part hereof.

Exhibit C—No change from Exhibit C in original application which is hereby made a part hereof. [2259]

Exhibit D—Compliance with the Laws of the State of Oregon.

Exhibit E—No change from Exhibit E in original application which is hereby made a part hereof.

Exhibit F—Ownership of Lands.

Exhibit G—Statement regarding financial ability of applicant.

Exhibit H—Effect of project operation on stream flow.

Exhibit I—Data upon which power is estimated.

Exhibit J—General Map showing location of project and existing and proposed transmission lines, Drawing No. Revised F-95143.

Exhibit K—Detail Map showing project structures and project boundary, Drawing No. Revised F-95144.

Exhibit L—General design drawings:

Drawing No. Revised F-97683, Exhibit L-1—General plan.

Drawing No. F-95135, Exhibit L-2—Powerhouse plans.

Drawing No. Revised F-97685, Exhibit L-3—Cross section through dam and powerhouse.

Drawing No. F-95137, Exhibit L-4—Arch dam dimensions and stresses. No change from L-4 in original application which is hereby made a part hereof.

Drawing No. Revised F-95139, Exhibit L-5—Location of drill holes and test pits.

Drawing No. Revised F-95140, Exhibit L-6—Geologic section and logs of drill holes.

Drawing No. Revised F-95141, Exhibit L-7—Hydrograph and flow-duration curve.

Drawing No. Revised F-95142, Exhibit L-8—Electrical one-line diagram.

Drawing No. F-112898, Exhibit L-9—Reregulating dam and reservoir.

Exhibit M—General description and specifications of equipment.

Exhibit N—Cost estimate of project.

Exhibit O—Proposed construction program.

In Witness Whereof the applicant has caused its name to be hereunto signed by Thomas M. Robins, its President, and its corporate seal to be hereto affixed by Hillman Lueddemann, its Secretary thereunto duly authorized, this sixth day of April, 1951.

[Seal] NORTHWEST POWER SUPPLY COMPANY,

/s/ By THOMAS M. ROBINS,
President.

Attest:

/s/ HILLMAN LUEDDEMANN,
Secretary. [2261]

Verification

State of Oregon
County of Multnomah—ss.

Thomas M. Robins, being first duly sworn deposes and says: That he is the President of the Northwest Power Supply Company, the applicant for a license, that he has read the foregoing application and knows the contents thereof; that the same are true to the best of his knowledge and belief.

/s/ THOMAS M. ROBINS

Subscribed and sworn to before me, this sixth day of April, 1951.

[Seal] /s/ JOHN J. COUGHLIN,
Notary Public for Oregon. My Commission Expires 9/20/53. [2262]

EXHIBIT D

Compliance With the Laws of the State of Oregon

Under the Hydroelectric Act of Oregon, which is Chapter 1 of Title 119 Oregon Compiled Laws Annotated as amended, the applicant must obtain a license from the Hydroelectric Commission of Oregon authorizing the applicant to build and operate the Pelton Project and to appropriate water therefor. On January 20, 1949, the applicant filed with the Hydroelectric Commission of Oregon an application for a preliminary permit. On April 25, 1949, a hearing was held before the Hydroelectric Commission of Oregon on such application. On the first day of July, 1949, the Hydroelectric Commission entered an order which among other things provided that the Northwest Power Supply Company should file with the Fish Commission of Oregon an application for a permit to construct a dam across the Deschutes River at the Pelton site. On October 25, 1949, the Northwest Power Supply Company filed an application with the Fish Commission of Oregon for a permit to construct a dam at the Pelton site. No hearing was held on this application nor was any formal order entered. However, the minutes of the Fish Commission show that at a meeting held on August 22, 1950, the application was denied. Negotiations are now being conducted with the Fish Commission of Oregon looking towards having this action rescinded and the application approved. Should the Fish Commission give its approval and the Hydroelectric Com-

Exhibit D—(Continued)

mission issue a preliminary permit, the applicant will then file its application for a license under the provisions of the Hydroelectric Act of Oregon.

The statement is a part of the application for license made by the undersigned this sixth day of April, 1951.

NORTHWEST POWER SUPPLY COMPANY,

/s/ By THOMAS M. ROBINS,
President. [2264]

EXHIBIT F

Ownership of Lands

1. Most of the land required for the dams, reservoirs and power plant is on U. S. government land previously withdrawn from entry for power site purposes. Application will be made to proper authority for a grant or permit to use this land, for which any required payments will be made.

2. Lands of the United States which will be affected are located in:

Land in T 9S-R 13E: W½ of S. W. ¼ of Section 31, N.E.¼ of S.W.¼ of Section 31.

Land in T 9S-R 12E: S.E.¼ of Section 36, S.E. ¼ of S.W.¼ of Section 36.

Land in T 10S-R 13E: S.W.¼ of S.W.¼ of Section 7, W.½ of N.W.¼ of Section 18, S.W.¼ of Section 18, N.W.¼ of Section 19, N.W.¼ of S.W.¼ of Section 19, S.W.¼ of N.W.¼ of Section 30, N.W.¼ of S.W.¼ of Section 30.

Exhibit F—(Continued)

Land in T 10S-R 12E: E.¾ of Section 1, E.½ of W.½ of Section 12, W½ of E.½ of Section 12, S.E. ¼ of S.E.¼ of Section 12, N.½ of N.E.¼ of Section 13, S.E.¼ of N.E.¼ of Section 13, E.½ of E.½ of Section 24, W.½ of S.E.¼ of Section 24, N.E.¼ of Section 25, N.½ of S.E.¼ of Section 25, S.W.¼ of S.E.¼ of Section 25, S.W.¼ of Section 25, N.W.¼ of N.E.¼ of Section 36, N.W.¼ of Section 36, N.½ of S.W.¼ of Section 36, S.W.¼ of S.W.¼ of Section 36, S.½ of N.E.¼ of Section 35, S.E.¼ of Section 35.

Land in T 11S-R 12E: W.½ of N.E.¼ of Section 2, W.½ of Section 2, N.½ of N.W.¼ of Section 11, S.W.¼ of N.W.¼ of Section 11, N.W.¼ of S.W. ¼ of Section 11, N.E.¼ of N.E.¼ of Section 10, S.½ of N.E.¼ of Section 10, S.½ of Section 10, N.W.¼ of N.W.¼ of Section 15, [2266] E.½ of W.½ of Section 15, W.½ of E.½ of Section 15, E.½ of S.W.¼ of Section 15, E.½ of S.E.¼ of Section 15, N.E.¼ of Section 22, N.½ of S.E.¼ of Section 22, S.W.¼ of S.E. ¼ of Section 22, E.½ of S.W.¼ of Section 22.

These lands, located within the Project Boundary, are shown on the accompanying map, Exhibit K. They are on a special reservation of lands previously withdrawn for power site purposes. The reservoir west of the river is on the Warm Springs Indian Reservation.

3. All other lands and property necessary for the project will be acquired by purchase or condemnation.

Exhibit F—(Continued)

These statements are a part of the application for license made by the undersigned this .... day of April, 1951.

NORTHWEST POWER SUPPLY COMPANY

By .....
President. [2267]

EXHIBIT G

Statement Regarding Financial Ability of Applicant

At the time of the hearing a supplement to this application will be filed showing how it is proposed to finance this project.

This statement is a part of the application for license made by the undersigned this 6th day of April, 1951.

NORTHWEST POWER SUPPLY COMPANY

/s/ By THOMAS M. ROBINS,
President. [2268]

EXHIBIT H

Effect of Project Operation on Stream Flow

The average monthly discharge for the last 25 years of continuous record, Oct., 1923-Sept., 1948, is 4,180 cfs. The lowest momentary flow at Pelton was 2,940 cfs on September 20, 1942. The peak flow of the river since observations began was 13,300 cfs on

Exhibit H—(Continued)

January 1, 1943. The stream flow is remarkably uniform, as indicated by the hydrographs shown on the drawing, Exhibit L-7.

The maximum water requirements of the plan with all three turbines operating at full gate is 10,300 cfs. Under normal conditions, the plant will operate at full capacity only during the peak hours of each day, and will cut back on output during the remaining hours of operation with the units being taken completely off the line during the low load demand hours of the night. The plant discharge will therefore vary from zero to a maximum of 10,300 cfs during the course of a normal day's operation. However, this discharge will be reregulated by a reregulating dam and reservoir, three miles downstream from the power plant in such a fashion that the flow downstream will correspond essentially to the natural flow condition.

This statement is a part of the application for license made by the undersigned this 6th day of April, 1951.

NORTHWEST POWER SUPPLY COMPANY

/s/ By THOMAS M. ROBINS,
President. [2269]

EXHIBIT I

Data Upon Which Power Is Estimated

1. Hydrographs and a flow-duration curve are herein submitted on one of the drawings, Exhibit

Exhibit 1—(Continued)

L-7. A tail water rating curve and reservoir capacity and area curves are shown on one of the drawings, Exhibits L-1 and L-3. A gross head of 150 feet will be developed with appropriate tailrace channel excavations.

2. The flow-duration curve, Exhibit L-7, shows that 3,600 cubic feet per second is available 90% of the time, which flow will produce 55,200 hp or 39,000 kw. The yearly output of energy based upon average stream flow for 25 years, 4,180 cubic feet per second, is estimated to be 375,000,000 kwh.

The flow-duration curve, Exhibit L-7, is subject to modification in the future by virtue of prior right appropriation for water for irrigation. This appropriation for irrigation, however, will not affect the peaking capacity of the plant. It may reduce the power available 90% of the time slightly, and might reduce the annual energy output from 375,000,000 kwh to about 325,000,000 kwh.

3. The long narrow reservoir with a small surface area makes the subject of evaporation from the surface of the reservoir practically insignificant in relation to the total volume of water available. No correction for evaporation was made. [2270]

4. The proposed interconnections with other power systems are outlined in Section 6 (d) of the application.

This statement is a part of the application for

Exhibit I—(Continued)

license made by the undersigned this 6th day of April, 1951.

NORTHWEST POWER SUPPLY COMPANY

/s/ By THOMAS M. ROBINS,
President. [2271]

EXHIBIT J

General Map

1. A General Map, Exhibit J, Drawing No. Revised F-95143, is submitted herewith:

It shows the location of the principal features of the project, including the dams, powerhouse, reservoirs, and transmission lines. It also shows the location with respect to State and County Lines, and shows the transmission line connections to the existing transmission lines of the Central Oregon Transmission System of the Pacific Power and Light Company.

No roads, railroads, towns, other major improvements will be flooded by the proposed reservoirs.

This map is a part of the application for license made by the undersigned this 6th day of April, 1951.

NORTHWEST POWER SUPPLY COMPANY

/s/ By THOMAS M. ROBINS,
President. [2272]

EXHIBIT K

Detail Map

A Detail Map, Exhibit K, Drawing No. Revised F-95144, is submitted herewith:

It shows the dam, reservoir, power plant, project boundary, and other features required to be shown on this map.

This map is a part of the application for license made by the undersigned this 6th day of April, 1951.

NORTHWEST POWER SUPPLY COMPANY

/s/ By THOMAS M. ROBINS,
President. [2273]

EXHIBIT L

General Design Drawings

Eight (8) general design drawings, Exhibit L, are submitted herewith, as follows:

Exhibit L-1, Drawing No. Revised F-97683—General plan.

Exhibit L-2, Drawing No. F-95135—Powerhouse plans.

Exhibit L-3, Drawing No. Revised F-97685—Cross section through dam and powerhouse.

Exhibit L-4, Drawing No. F-95137—Arch dam dimensions and stresses. No change from L-4 in original application which is hereby made a part hereof.

Exhibit L-5, Drawing No. Revised F-95139—Location of drill holes and test pits.

Exhibit L—(Continued)

Exhibit L-6, Drawing No. Revised F-95140—Geologic sections and logs of drill holes.

Exhibit L-7, Drawing No. Revised F-95141—Hydrographs and flow-duration curve.

Exhibit L-8, Drawing No. Revised F-95142—Electrical one-line diagram.

Exhibit L-9, Drawing No. F-112898—Reregulating dam and reservoir.

These drawings are a part of the application for license made by the undersigned this 6th day of April, 1951.

NORTHWEST POWER SUPPLY COMPANY

/s/ By THOMAS M. ROBINS,
President. [2274]

EXHIBIT M

General Description and Specifications of Equipment

It is proposed to install mechanical, electrical, and transmission equipment as follows:

Main Turbines will be vertical shaft, Francis type machines direct connected to vertical shaft generators. The turbines will be designed to develop 52,000 hp when operating under a net effective head of 150 feet at a speed of 128.5 rpm. The normal quantity of water required for each turbine will be 3,450 cfs. Each turbine will be provided with a

Exhibit M—(Continued)

spiral scroll case. The turbines will be controlled and regulated by oil pressure governors arranged for hand and switchboard control.

Penstocks

The penstocks will be 16 feet in diameter and approximately 160 feet long. They will be riveted or welded steel construction.

Gates

Each penstock will be provided with a Broome gate placed at the penstock intake, and controlled electrically from the powerhouse.

Steel draft tube gates will be provided at the draft tube exit.

When not in use, they will be stored in a gate storage chamber.

Main generators will be of the vertical shaft type, direct connected to vertical shaft hydraulic turbines. Each generator will be a three-phase, 13,800-volt unit rated at 40,000 kva at 0.9 power factor, operating at 128.5 rpm. Main and pilot exciters will be mounted above the rotor of each generator and will be provided with an adeqaute cooling and ventilating system. The powerhouse will be of the outdoor type with the generators placed on the top deck or floor. The generators will be housed in a heavy steel housing. [2275]

Gantry Crane

A 175-ton gantry crane with a 20-ton auxiliary hook will be provided. The heaviest piece to be lifted

Exhibit M—(Continued)

is the generator rotor weighing 320,000 pounds. The crane will traverse the length of the powerhouse and also over the erection bay at the east end of the powerhouse.

Electrical equipment for the main generators will be as follows:

Surge protective equipment consisting of lightning arresters and capacitors will be connected to the main leads. Adequate grounding will be provided. Switchboard will be provided to consist of instrument and control panels, board, relay panels, and auxiliary control panels. Auxiliary power transformers will be provided.

Transformer Equipment

Transformer equipment will consist of three 40,000-kva, 3-phase forced oil and air cooled transformers with secondary voltage at 13,200 volts and primary voltage at 230,000 volts.

Control equipment will consist of oil or air circuit breakers for generator and line control of appropriate current and voltage ratings, electrically operated from the switchboard.

Miscellaneous Power Plant Equipment

Some ventilation equipment may be installed, though in this climate only a moderate amount will be necessary. Electric heating will be provided for cold weather. Air compressors, oil filters, unwatering pumps, and other usual accessories and control apparatus will be provided. Interior and exterior lighting will be provided. [2276]

Exhibit M—(Continued)

These statements are a part of the application for license made by the undersigned this 6th day of April, 1951.

NORTHWEST POWER SUPPLY COMPANY

/s/ By THOMAS M. ROBINS,
President. [2277]

EXHIBIT N

Estimate of Cost

An estimate of the cost of constructing the initial development of this project is filed herewith. It includes the cost of the dams, reservoirs, power plant, switching stations and facilities for protection and preservation of fish. The total of this estimate, including overhead and interest during construction is $22,070,000.

The estimated cost of installing necessary transmission lines for connection with Central Oregon Transmission System of P. P. & L. Co. (including all overhead) is $250,000. Detailed estimate will be provided later.

This statement is part of the application for license made by the undersigned this 6th day of April, 1951.

NORTHWEST POWER SUPPLY COMPANY

/s/ By THOMAS M. ROBINS,
President. [2278]

EXHIBIT O

Proposed Construction Program

It is planned to begin construction of the project works as soon as possible after appropriate permits are granted and to rush the project to completion.

Tentative delivery dates for the principal items of the hydroelectric machinery, including the generators, turbines, main transformers, and oil circuit breakers are as follows:

Generators: First unit—June, 1952; second unit —Sept., 1952; third unit—Dec., 1952.

Turbines: First unit—(May, 1952); second unit —(July, 1952); third unit—(Sept., 1952).

Oil Circuit Breakers: October, 1952.

Main Transformers: October, 1952.

Inasmuch as the dam itself is small, the construction work can be completed sooner than the major hydroelectric machinery is delivered. We estimate that all work can be completed and the plant ready for operation 5 months after the turbines are delivered or 3 months after the generators, [2287] transformers and oil circuit breakers are delivered. The following tabulation shows the possible completion dates, based upon these premises.

First Unit

Turbine: Delivery: May, 1952, Project Completed Nov., 1952.

Generator: Delivery: June, 1952, Project Completed Oct., 1952.

Exhibit O—(Continued)

Oil Circuit Breaker: Delivery: Oct., 1952, Project Completed Jan., 1953.

Transformers: Delivery: Oct., 1952, Project Completed Jan., 1953.

Second Unit

Turbine: Delivery: July, 1952, Project Completed Jan., 1953.

Generator: Delivery: Sept., 1952, Project Completed Jan., 1953.

Third Unit

Turbine: Delivery: September, 1952, Project Completed March, 1953.

Generator: Delivery: December, 1952, Project Completed March, 1953.

Assuming that a certain amount of delay will occur for one reason or another, it is estimated that the project will be completed and ready to deliver electric energy by May to June, 1953.

This statement is a part of the application for license made by the undersigned this 6th day of April, 1951.

NORTHWEST POWER SUPPLY COMPANY

/s/ By THOMAS M. ROBINS
President. [2288]

F.P.C. Received April 9, 1951.

United States of America
Federal Power Commission

Before Commissioners: Mon C. Wallgren, Chairman; Thomas C. Buchanan, Claude L. Draper and Harrington Wimberly.

Project No. 2030

April 24, 1951

In the Matter of Northwest Power Supply Company.

ORDER FIXING HEARING

On May 23, 1949, Northwest Power Supply Company, of Portland, Oregon, filed an application for a license under the Federal Power Act to authorize the construction, operation and maintenance of a proposed hydroelectric development designated in the records of the Commission as Project No. 2030 and known as the Pelton power project to be located in and along the Deschutes River in the vicinity of Madras, Oregon.

The proposed project, if constructed, would be in Jefferson County, Oregon, and would affect lands of the United States and tribal and allotted lands within the Warm Springs Indian Reservation.

On April 9, 1951, the applicant filed supplemental application proposing additional project works.

The proposed project, as described in the application as supplemented, would consist of a concrete arch dam approximately 190 feet high with crest length of about 850 feet; a separate spillway struc-

ture, a reservoir approximately 7.2 miles long and less than one-quarter mile wide at its widest point with storage capacity of 26,000 acre-feet and surface area of 460 acres; penstocks; a powerhouse immediately downstream from the dam containing three 52,000-horsepower turbines connected to three 40,000-kilovolt ampere generators; a switch yard; transmission lines; and appurtenant facilities. In addition, the applicant proposes to construct a re-regulating dam about 3 miles downstream from the main dam for the purpose of re-regulating the discharge from the generating units and thus provide a relatively uniform stream flow below the project; an egg-taking station with holding pools and an adequate water supply at the site of the re-regulating dam; fish traps in the re-regulating dam and a fish ladder leading from the traps to the holding pools; to expand the Metolius hatchery or construct a new hatchery wherever desired by the Fish Commission of Oregon; provide trucks for the transportation of eggs and fingerlings; and provide whatever land may be needed for the above-described fish facilities. [2301]

Substantial public interest in the applicant's proposal to construct the project is indicated by the number of communications urging approval or disapproval of the application. In addition, requests for a public hearing have been received.

The Commission finds:

It is in the public interest to hold a public hear-

ing respecting the matters involved and the issues presented in this proceeding.

The Commission orders:

(A) Pursuant to the authority contained in and subject to the jurisdiction conferred upon the Commission by the Federal Power Act, particularly Sections 4, 6 and 308 thereof, and the Commission's Rules of Practice and Procedure (in force January 1, 1948 as amended and supplemented), a public hearing be held commencing on the 4th day of June, 1951 at 10:00 a.m. (PST) in Room 506, U. S. Post Office, Broadway and Glisan Streets, Portland, Oregon.

(B) As provided in Rule 30 (18 CFR 1.30) of the Commission's Rules of Practice and Procedure, the officer hereafter designated to preside at the hearing shall certify the record of the hearing, including his report thereon, to the Commission for its decision and the presiding officer's report shall constitute a recommended decision.

By the Commission.

LEON M. FUQUAY,
Secretary.

Date of Issuance: May 1, 1951. [2302]

The Director April 30, 1951
Bureau of Land Management
Department of the Interior, Washington 25, D. C.

Dear Sir:

By letter dated June 20, 1949 this Commission notified your office of the withdrawal of approxi-

mately 2,690.53 acres of lands of the United States pursuant to the filing of an application for license by the Northwest Power Supply Company for the Pelton development docketed as project No. 2030.

On April 9, 1951 the aforesaid applicant filed an amendatory application to include, within the above-cited development, a reregulating reservoir to be located approximately four miles below the Pelton dam.

In accordance with the provisions of Section 24 of the Act of June 10, 1920, as amended, notice is hereby given that the hereinafter described lands, insofar as title thereto remains in the United States, are included in project No. 2030 and are from April 9, 1951, reserved from entry, location or other disposal under the laws of the United States until otherwise directed by the Commission or by Congress. The area reserved by the filing of this application is approximately 408.32 acres of which 368.32 acres have been heretofore reserved in earlier project No. 57, Power Site Reserve No. 66 and Indian Power Site Reserve No. 2.

Willamette Meridian, Oregon.

T. 9 S., R. 12 E., sec. 36, N½NE¼SE¼, SE¼ SE¼, W½SE¼, SE¼SW¼.

T. 10 S., R. 12 E., sec. 1, lot 14, SE¼NW¼; sec. 12, lots 7, 12; sec. 13, lot 4.

T. 10 S., R 12½ E., sec. 7, lot 1; sec. 18, lot 1;

T. 10 S., R. 13 E., sec. 18, lots 1, 2. [2303]

A photostatic copy of the amendatory project map (FPC No. 2030-12) is transmitted herewith.

Very truly yours,

LEON M. FUQUAY,
Secretary.

Inclosure No. 72291: copy of project map
cc & map (Incl. No. 72292) Bureau of Land Management; (Incl. No. 72293) District Land Office; (Incl. No. 72295) Bureau of Indian Affairs; (Incl. No. 72291) San Francisco Regional Office; (Incl. No. 72294) Geological Survey.
LP MPD: ld 4-18-51
cc: Commissioner Buchanan, Bureau of Law, Division of Licensed Projects. [2304]

[Western Union Telegram]

1951 Jun 12 pm 3:56

PR LLD146 DL PD—Portland Org 12 1049A—Secretary of Federal Power Commission—Wash DC—

Regarding Application Northwest Power Supply Company and Portland General Electric Company Application For License Pelton Power Project Deschutes River Oregon FPC Project Number 2030 Request Authority for State of Oregon and Oregon Fish Commission and Oregon Game Commission for Leave to Intervene—
Arthur J. Higgs Assist Attorney General State of Oregon 1634 Southwest Alder.

FPC Received June 5, 1951. [2309]

United States of America
Federal Power Commission

Before Commissioners: Thomas C. Buchanan, Acting Chairman; Claude L. Draper, Nelson Lee Smith and Harrington Wimberly.

June 14, 1951

In the Matter of Northwest Power Supply Company—Project No. 2030.

ORDER GRANTING INTERVENTION

Pursuant to an informal petition filed on behalf of the Oregon Division of the Isaac Walton League for permission to intervene in the above proceeding.

The Commission orders:

The Oregon Division of the Isaac Walton League is hereby permitted to become an intervenor in this proceeding; provided, however, that such intervention shall not be construed as recognition that said intervenor would be aggrieved by any order of the Commission in said proceeding.

By the Commission.

J. H. GUTRIDE,
Acting Secretary.

Date of Issuance June 15, 1951 [2310]

United States of America
Federal Power Commission

Before Commissioners: Thomas C. Buchanan, Acting Chairman; Claude L. Draper, Nelson Lee Smith and Harrington Wimberly.

June 14, 1951

In the Matter of Northwest Power Supply Company—Project No. 2030.

ORDER GRANTING INTERVENTION

On June 12, 1951, a petition was filed in the name of the Attorney General of Oregon for permission for the State of Oregon, the Oregon Fish Commission, and the Oregon Game Commission to intervene in the above proceeding.

The Commission orders:

The Attorney General of the State of Oregon, the Oregon Fish Commission, and the Oregon Game Commission are hereby permitted to become interveners in this proceeding, provided, however, that such intervention shall not be construed as recognition that any of said interveners would be aggrieved by any order of the Commission in said proceeding.

By the Commission.

J. H. GUTRIDE,
Acting Secretary.

Date of Issuance: June 15, 1951. [2311]

SECOND SUPPLEMENT TO APPLICATION FOR LICENSE

Northwest Power Supply Company, Pelton Power Project, Deschutes River, Oregon. F.P.C. Project No. 2030. (Original Application Filed May 23, 1949.)

Before the Federal Power Commission

APPLICATION FOR LICENSE

(1) The Northwest Power Supply Company, a corporation organized under the laws of the State of Oregon, and having its office and principal place of business at Portland, in the State of Oregon, hereby makes application to the Federal Power Commission for a license to authorize the construction, operation, and maintenance of certain project works fully described herein.

(2) The name, title, and post office address of the perso nto whom correspondence in regard to this application shall be addressed, is as follows: Thomas M. Robins, Director and President, Northwest Power Supply Company, 510 Electric Building, Portland 5, Oregon.

(3) The applicant is a corporation and is organized under the following laws:

The laws of the State of Oregon. [2314]

(4) The measure of control or ownership exercised by the applicant in any other organization or over applicant by any other organization is as follows: None.

Exhibit A-1—(Continued)

19. To purchase, acquire, own, lease from or to other corporations or individuals, use, sell, and transfer any franchise, right, or privilege necessary, expedient or convenient for the conduct of any enterprise, business, pursuit, or occupation in which it is authorized to engage.

20. To charge and collect rates, fares, freights, tolls, lockage, and other compensation for any service, right, privilege, benefit, use, accommodation, passage, transportation, commodity, or other matter or thing rendered or furnished by it.

21. To issue its bonds, coupon notes, promissory notes, debentures or other obligations for the purpose of borrowing money thereon and to mortgage, pledge, or give or convey in trust any or all of its property, real, personal or mixed, and its franchises, rights, and privileges to secure the payment thereof.

22. To guarantee the stock, bonds, or other obligations and securities of other corporations or individuals.

23. To exercise the power of eminent domain to the extent and in the manner permitted by the laws of the State of Oregon.

24. Generally to do each and every act and thing which at any time it may be necessary, requisite, or convenient to do in order to accomplish the purposes herein expressed, and fully to enjoy its corporate powers.

Article IV.

This Corporation proposes to acquire, make, con-

Exhibit A-1—(Continued)

struct, and operate lines of railway with termini as follows:

(a) From the City of Portland, in the County of Multnomah, State of Oregon, in a general Easterly and Southeasterly direction to a point in the Northwest quarter of Section Thirty-four (34), Township Three (3) South of Range Four (4) East of the Willamette Meridian, in the County of Clackamas, in said State; and/or

(b) From said City of Portland in a general Southerly direction to and through Oregon City to the Town of Canemah on the Willamette River about one (1) mile South of Oregon City, in said County of Clackamas; and/or

(c) From said City of Portland, in a general Easterly and Southeasterly direction to and through the Village of Lents to Lents Junction on the line of railway first above mentioned, in said County of Multnomah; and/or

(d) From Linneman Junction, a point on the line of railway first above mentioned, near the Town of Cedarville, in Section Seventeen (17), Township One (1) South of Range Three (3) East of the Willamette Meridian, in a general Northerly direction to Ruby Junction, and thence in a general Easterly and Southeasterly direction through the Town of Gresham to a point in the Northeast quarter of Section Six (6), Township Two (2) South, Range Five (5) East of the Willamette Meridian, in the County of Clackamus, State of Oregon; and/or

(5) The applicant operates and/or proposes to operate in the following states: The State of Oregon.

A concise description of the project and principal project work have heretofore been described in original application filed on or about May 23, 1949, and in first supplement to application for said license.

That it was contemplated at the time of the filing of the original application that power from said project would be sold by Northwest Power Supply Company to Pacific Power & Light Company, Washington Water Power Company, and Portland General Electric Company; that Pacific Power & Light Company and Washington Water Power Company have each commenced additional power generating projects, and that the boards of directors of Portland General Electric Company, a corporation of Oregon, and Northwest Power Supply Company have authorized an agreement under which Portland General Electric Company will acquire all of the right, title and interest that the Northwest Power Supply Company has in and to said project on the Deschutes River, and that if any and all necessary permits and licenses are granted for the construction of said dam and powerhouse and completion of said project, that Portland General Electric Company will acquire from Northwest Power Supply Company any and all such permits and licenses together with any and all of the properties, rights and assets of the Northwest Power Supply Company, including the [2315] acquisition of any li-

Exhibit A-1—(Continued)

(e) From said City of Portland in a general Northerly direction to the City of Vancouver, in the County of Clark, State of Washington.

Article V.

The principal office and place of business of this Corporation shall be in the City of Portland, in the County of Multnomah, in the State of Oregon.

Article VI.

The authorized Capital Stock of this corporation is:

Common Stock. Five Hundred Thousand (500,000) shares of Common Stock of no par value.

Preferred Stock. Preferred Stock shall be authorized in such issues and classes as may from time to time be determined by the holders of a majority of the then outstanding common stock; each such authorized issue of preferred stock to be of such class, with or without par value, in such number of shares and/or aggregate amount, and having such rights, privileges, priorities and be subject to redemption or retirement upon such terms and conditions as may be prescribed in the resolution of the holders of a majority of common stock at the time of the authorization of any class or issue of preferred stock.

Article VII.

This Corporation shall not begin business until and unless a capital of One Thousand ($1,000.00) Dollars shall be paid in, either in money, or in equivalent property values.

In Witness Whereof, we have hereunto set our

censes issued by the Federal Power Commission to the original application for permit as amended and supplemented hereby, and that any permit or license granted shall be issued directly to Portland General Electric Company.

(1) Portland General Electric Company, a corporation organized under the laws of the State of Oregon, and having its office and principal place of business at Portland, in the State of Oregon, hereby makes application to the Federal Power Commission that any license which might be issued to the Northwest Power Supply Company should be issued to Portland General Electric Company.

(2) The name, title and post office address of the person to whom correspondence in regard hereto shall be addressed is as follows: James H. Polhemus, Director and President, Portland General Electric Company, Electric Building, Portland 5, Oregon.

(3) Portland General Electric Company is a corporation and is organized under the following laws: The laws of the State of Oregon.

(4) The measure of control or ownership exercised by Portland General Electric Company in any other organization or over Portland General Electric Company by any other organization is as follows: None.

(5) Portland General Electric Company operates and/or proposes to operate in the following states: The State of Oregon. [2316]

Exhibit A-1—(Continued)

hands and seals, in triplicate, this 24th day of July, 1930.

[Seal] /s/ CASSIUS R. PECK
[Seal] /s/ EARL S. NELSON
[Seal] /s/ CLARENCE D. PHILLIPS

Witnesses: Theresa W. Bernges, Alice W. Bushnell.

State of Oregon,
County of Multnomah—ss.

On this 24th day of July, 1930, before me, the undersigned, a Notary Public in and for said County and State, personally appeared Cassius R. Peck, Earl S. Nelson and Clarence D. Phillips, to me known to be the individuals described in and who executed the foregoing Articles of Incorporation, and acknowledged to me that they executed the same. [2329]

In Testimony Whereof, I have hereunto set my hand and affixed my Notarial Seal, this, the day and year in this instrument first written.

[Seal] THERESA W. BERNGES,
Notary Public for Oregon. My commission expires Dec. 13, 1933.

Endorsed: 34142 Articles of Incorporation of Portland General Electric Company filed in the office of the Corporation Commissioner of the State of Oregon at 11:30 o'clock a.m., the 25th day of July, 1930. Mark D. McCallister, Corporation Commissioner.

The following exhibits are filed herewith and hereby are made a part of this supplemental application:

Exhibit A—No change from Exhibit A in original application which is hereby made a part hereof.

Exhibit A-1—Articles of Incorporation of Portland General Electric Company. By Laws of Portland General Electric Company. Certificate of Organization of Portland General Electric Company.

Exhibit B—No change from Exhibit B in original application which is hereby made a part hereof.

Exhibit B-1—Resolution of Board of Directors of Portland General Electric Company.

Exhibit B-2—Minutes of meeting of stockholders of Northwest Power Supply Company. Minutes of meeting of Board of Directors of Northwest Power Supply Company.

Exhibit C—No change from Exhibit C in original application which is hereby made a part hereof.

Exhibit D—Compliance with the laws of the State of Oregon.

Exhibit E—No change from Exhibit E in original application which is hereby made a part hereof.

Exhibit F—No change from Exhibit F in the supplemental application which is hereby made a part hereof.

Exhibit G-1—Statement regarding financial ability of Portland General Electric Company as prospective assignee.

Exhibit H—No change from Exhibit H in the supplemental application which is hereby made a part hereof. [2317]

Exhibit I—No change from Exhibit I in supplemental application which is hereby made a part hereof.

Exhibit I-1—Power Plants and Interconnections of Portland General Electric Company.

Exhibit J—No change from Exhibit J in the supplemental application which is hereby made a part hereof.

Exhibit K—No change from Exhibit K in the supplemental application which is hereby made a part hereof.

Exhibit L—General Design Drawings. No change from Exhibit L in supplemental application which is hereby made a part hereof except that revised drawing F-114009 is substituted for Exhibit L-9 drawing F-112898.

Exhibit M—No change from Exhibit M in supplemental application which is hereby made a part hereof.

Exhibit N—No change from Exhibit N in supplemental application which is hereby made a part hereof.

Exhibit O—No change from Exhibit O in supplemental application which is hereby made a part hereof.

Exhibit A-1—(Continued)

SUPPLEMENTARY ARTICLES OF INCORPORATION OF PORTLAND GENERAL ELECTRIC COMPANY

Whereas at a meeting of the subscribers to the capital stock of the above named corporation, duly and regularly called and held at 9:45 o'clock a.m., the 16th day of January, 1948, at the principal office of said corporation at 621 Southwest Alder Street in the City of Portland, County of Multnomah, State of Oregon, at which there were present and voting, either in person or by proxy, subscribers to two hundred thirty-six thousand eight hundred nineteen (236,819) shares of the capital stock of said corporation, being all of the stock subscribed, there was presented and adopt by a unanimous vote a resolution authorizing the directors of the said corporation to execute and file supplementary articles increasing the common capital stock of no par value and amending Article VI of the Articles of Incorporation.

Now, Therefore, We, James H. Polhemus, Paul Wallace, Ross B. Hammond, Robert H. Strong and Frank M. Warren, Jr., being a majority of the directors of Portland General Electric Company, a corporation, and having been heretofore duly authorized by the resolution aforesaid, do hereby execute and acknowledge supplementary articles of incorporation, amending Article VI of the original articles of incorporation of this company, to read as follows:

In Witness Whereof the applicant has caused its name to be hereunto signed by Thomas M. Robins, its president, and its corporate seal to be hereunto affixed by Hillman Lueddemann, its secretary thereunto duly authorized this 8th day of June, 1951.

[Seal] NORTHWEST POWER SUPPLY COMPANY

By .....
President.

Attest:

.....
Secretary. [2318]

In Witness Whereof Portland General Electric Company has caused its name to be hereunto signed by James H. Polhemus, its president, and its corporate seal to be hereunto affixed by Clarence D. Phillips, its secretary, thereunto duly authorized this 8th day of June, 1951.

[Seal] PORTLAND GENERAL ELECTRIC COMPANY

By .....
President.

Attest:

.....
Secretary. [2319]

Exhibit A-1—(Continued)

Article VI.

The authorized capital stock of this corporation is:

Common Stock: One million five hundred thousand (1,500,000) shares of common stock of no par value.

Preferred Stock: Preferred stock shall be authorized in such issues and classes as may from time to time be determined by the holders of a majority of the then outstanding common stock; each such authorized issue of preferred stock to be of such class, with or without par value, in such number of shares and/or aggregate amount, and having such rights, privileges, priorities and be subject to redemption or retirement upon such terms and conditions as may be prescribed in the resolution of the holders of a majority of common stock at the time of the authorization of any class or issue of preferred stock. [2331]

In Witness Whereof we have hereunto set our hands and seals this 16th day of January, A.D. 1948.

[Seal] /s/ JAMES H. POLHEMUS
[Seal] /s/ ROSS B. HAMMOND
[Seal] /s/ ROBERT H. STRONG
[Seal] /s/ PAUL B. WALLACE
[Seal] /s/ FRANK M. WARREN, Jr.

State of Oregon,
County of Multnomah—ss.

This certifies that on this 16th day of January, A.D. 1948, before me, the undersigned, a Notary Public in and for said county and state, personally

Verification

State of Oregon,
County of Multnomah—ss.

Thomas M. Robins, being first duly sworn deposes and says: That he is the President of the Northwest Power Supply Company, the applicant for a license, that he has read the foregoing application and knows the contents thereof; that the same are true to the best of his knowledge and belief.

.....

Subscribed and sworn to before me, this 8th day of June, 1951.

[Seal] .....
Notary Public for Oregon. My Commission Expires:..... [2320]

Verification

State of Oregon,
County of Multnomah—ss.

James H. Polhemus, being first duly sworn deposes and says: That he is the President of the Portland General Electric Company, that he has read the foregoing application and knows the contents thereof; that the same are true to the best of his knowledge and belief.

.....

Subscribed and sworn to before me, this 8th day of June, 1951.

[Seal] .....
Notary Public for Oregon. My Commission Expires: ..... [2321]

Exhibit A-1—(Continued)

appeared James H. Polhemus, Paul Wallace, Ross B. Hammond, Robert H. Strong, and Frank M. Warren, Jr., known to me to be the identical persons named in and who executed the foregoing supplementary articles of incorporation and acknowledged to me that they executed the same freely and voluntarily for the uses and purposes therein mentioned.

In Testimony Whereof, I have hereunto set my hand and notarial seal the day and year last above written.

[Seal] /s/ CLARENCE D. PHILLIPS,
Notary Public for Oregon. My commission expires:
Dec. 6, 1949. [2332]

Endorsed: 34142. Certificate of Increase of Capital Stock of Portland General Electric Company. Filed in the office of the Corporation Commissioner of the State of Oregon at 8:30 o'clock a.m., the 16th day of January, 1948. Maurice Hudson, Corporation Commissioner. [2333]

CERTIFICATE OF INCREASE OF CAPITAL STOCK

Certificate and Copy of Resolution Increasing Capital Stock of Portland General Electric Company, a corporation.

I, Clarence D. Phillips, Secretary of Portland General Electric Company, a corporation organized and formed under and by virtue of the laws of the State of Oregon, hereby certify that at a special

EXHIBIT A-1

Articles of Incorporation, By Laws, Certificate of Organization

A certified copy and three uncertified copies of the Articles of Incorporation of Portland General Electric Company together with amendments thereto are filed herewith. The certificate of the Corporation Commissioner of the State of Oregon shows that Portland General Electric Company is in good standing and that there have been no amendments to the original Articles of Incorporation except those attached to said certificate.

One certified copy and three uncertified copies of the By-Laws of Portland General Electric Company are filed herewith.

Copies in quadruplicate of the Certificate of Organization of Portland General Electric Company are filed herewith.

These statements are a part of the application for license made by the undersigned this 8th day of June, 1951.

NORTHWEST POWER SUPPLY COMPANY

By .....
President.

PORTLAND GENERAL ELECTRIC COMPANY

By .....
President. [2322]

Exhibit A-1—(Continued)

meeting of the stockholders of said corporation, duly and legally called and held at the principal office of said corporation at 621 Southwest Alder Street in the City of Portland, County of Multnomah, State of Oregon, at 9:45 a.m. on the 16th day of January, 1948, which meeting was called for the purpose of increasing the capital stock of such corporation; that a majority of said stock was present at such meeting of the stockholders thereof and voted; that the following is a fully copy of the resolution authorizing the increase of the capital stock of the corporation:

"Be It Resolved that the authorized capital stock of this corporation be increased by increasing the common stock from five hundred thousand (500,000) shares of no par value to one million five hundred thousand (1,500,000) shares of no par value.

"Be It Further Resolved that the board of directors or a majority thereof be and it is hereby authorized to execute and file supplementary articles of incorporation amending Article VI of the Articles of Incorporation so as to provide for one million five hundred thousand (1,500,000) shares of common stock of no par value and so that the same shall read as follows:

"The authorized capital stock of this corporation is:

"Common stock: One million five hundred thousand (1,500,000) shares of common stock of no par value.

"Preferred stock: Preferred stock shall be authorized in such issues and classes as may from time

Exhibit A-1—(Continued)

State of Oregon

Corporation Department

I, Maurice Hudson, Corporation Commissioner and Custodian of the Seal of the Corporation Department of the State of Oregon, Do Hereby Certify:

That I have carefully compared the annexed copies of the Articles of Incorporation and all amendments thereto to Portland General Electric Company with the originals thereof now on file in my office; that the same are correct transcripts therefrom and of the whole thereof; that this authentication is in due form and by the proper officer;

That no other amendments or supplementary articles of incorporation, or certificates of increase or decrease of the capital stock of this corporation, have been filed in this office; and

I Further Certify that Portland General Electric Company has filed all annual reports up to and including June 30, 1950, and has paid all annual license fees due this department up to and including June 30, 1951, as required by the statutes of the State of Oregon, and is, at the date of this certificate, in good standing as a subsisting corporation.

In Testimony Whereof, I have hereunto set my hand and affixed hereto the seal of the Corporation Department of the State of Oregon, at Salem, this 17th day of May, 1951. [2323]

[Seal] /s/ MAURICE HUDSON,
Corporation Commissioner.

Exhibit A-1—(Continued)

ARTICLES OF INCORPORATION OF PORTLAND GENERAL ELECTRIC COMPANY

Know All Men by These Presents, that we, the undersigned, Cassius R. Peck, Earl S. Nelson and Clarence D. Phillips, of the City of Portland, County of Multnomah, State of Oregon, do hereby associate ourselves together for the purpose of forming a corporation under the general incorporation laws of the State of Oregon, and we hereby adopt the following

Articles of Incorporation

Article I.

The name assumed by this Corporation and by which it shall be known is Portland General Electric Company.

Article II.

The duration of this Corporation is and shall be unlimited.

Article III.

The enterprise, business, pursuit, or occupation in which this Corporation proposes to engage is:

A. The construction, purchase, acquisition, ownership, improvement, leasing from or to other corporations, or individuals, maintenance, use and operation of plants and properties for the generation, manufacture, production and furnishing of light, heat, and power including the generation, manufacture, production, furnishing, use and sale to the public generally, including other corporations, towns, cities and municipalities of electricity, gas, steam, compressed air, cold air, and any and all

Exhibit A-1—(Continued)

other kinds of power, forces, fluids, currents, matter and materials used, or that may be used, for the purpose of illumination, heat, cold, motive power, or for any other purposes for which such substances or any of them may now or hereafter be used or suitable for use, together with transmission lines, distribution lines, equipment, shops, towers, poles, wires, pipes, conduits, apparatus and appliances, telephone lines, telegraph lines and machinery, buildings and property for the operation of such plants and properties.

B. The construction, purchase, acquisition, ownership, improvement, leasing from or to other corporations or individuals, maintenance, use, and operation of lines of street railway and other railway lines with rolling stock and equipment, car-barns, shops, power plants, depots, stations, poles, wires, conduits, subways, apparatus and appliances, telephone lines, telegraph lines, and other buildings and property for the operation thereof in, on, over, under, along and through the streets, roads, alleys, and other [2324] public places and private places and private property in the Cities of Portland, Oregon City and Salem, and in the Counties of Multnomah, Clackamas, and Marion, in the State of Oregon, and in and through other counties, cities, towns and villages of said State of Oregon, and in the City of Vancouver, in the County of Clark, in the State of Washington, and in and through the other counties, cities, towns, and villages in said State of Washington; and also bridges and ferries with boats, landings, docks, and other property for

Exhibit A-1—(Continued)

the operation thereof in, upon, over, across, and along the Columbia and Willamette Rivers and other streams in connection with said lines of railway.

C. The purchase, acquisition, ownership, holding and enjoyment and sale, pledge and other disposition of, and trading and dealing in, shares of capital stock and bonds, notes, mortgages, debentures and other evidences of indebtedness, of corporations, and corporate securities of every and any kind, including particularly shares of stock, bonds, notes, mortgages, debentures, evidences of indebtedness and securities of corporations owning and operating, or owning or operating, power plants, lighting or heating plants, gas manufacturing plants and/or gas distribution systems, street railways, and railroads, or any or all thereof, with the full power and authority to exercise and enjoy all rights, powers and privileges of ownership of all shares of stock, bonds, notes, mortgages, debentures, evidences of indebtedness, corporate securities and choses in action at any time owned, acquired or held by it, including the right to vote and collect, receive and dispose of dividends upon such shares of stock and to enforce, collect, receive and dispose of the interest and principal of all such bonds, notes, mortgages, debentures, evidences of indebtedness and choses in action.

D. In the prosecution of and in connection with and in addition to the aforesaid general enterprise or pursuit this Corporation proposes to engage in the following enterprises or pursuits:

Exhibit A-1—(Continued)

1. To construct, purchase, acquire, own, improve, lease from and to other corporations and individuals, maintain, use and operate water rights and privileges and water powers, riparian rights, canals, and pipe lines and to supply and sell water, and the use and flow of water, to persons, corporations, factories, towns, and cities for domestic or public purposes and for use as power and for manufacturing and other purposes.

2. To construct, purchase, acquire, own, improve, lease from and to other corporations and individuals, maintain, use and operate lines of railroad in and through the cities of Portland and Oregon City, and the Counties of Multnomah and Clackamas, and other counties in the State of Oregon, and also in the City of Vancouver and the County of Clark, and other counties in the State of Washington, and for this purpose to exercise the right of eminent domain and appropriate private property.

3. To receive, carry and transport passengers, freight, baggage, and express matter and the United States Mails. [2325]

4. To construct, purchase, acquire, own, improve, lease from and to other corporations and individuals, maintain, use and operate, and manufacture, repair, deal in, furnish, and sell rolling stock, motors, railway and other equipment and machinery, and all kinds of electrical apparatus, machinery supplies and appliances; to engage in and carry on the business of importing, exporting, manufacturing, producing, buying, selling and otherwise deal-

Exhibit A-1—(Continued)

ing in and with goods, wares, and merchandise of every class and description, and especially stoves, engines, motors, lamps and other devices, apparatus, appliances, and equipment operated by or in connection with or calculated directly or indirectly to promote the consumption or use of electrical energy, gas, or their products or by-products.

5. To operate its railways and railroad lines and other properties, or any of them by electricity, gas, steam, compressed air, or other motive power, and to change its motive power from time to time, as it may determine.

6. To relocate, change, straighten, improve or extend its lines of railway or railroad, or any part thereof, from time to time, and the location of all or any of its bridges, ferries, docks, landings, or other structures or buildings.

7. To construct, purchase, acquire, own, improve, lease from and to other corporations and individuals, maintain, use and operate parks, pleasure resorts, and places of amusement and recreation and inns and hotels in connection with and located conveniently to its lines of railway and its railroad lines.

8. To construct, purchase, acquire, own, improve, lease from and to other corporations and individuals, maintain, use and operate telephone and telegraph lines in connection with the operation of its other properties.

9. To construct, purchase, acquire, own, improve,

Exhibit A-1—(Continued)

lease from and to other corporations and individuals, maintain, use, and operate cables under and over the Willamette, Columbia, Clackamas and other rivers and streams for carrying electricity or other motive power, or its telephone or telegraph or other wires and lines, for the operation of its properties.

10. To purchase, acquire, possess, own, hold, improve, lease from and to other corporations or individuals, maintain, and operate real property, and to build dwelling houses, stores, mills, factories, warehouses, wharfs, wharf boats, and any and all other buildings or structures and to lease, operate, sell, and dispose of the same.

11. To lay out and plot any real property belonging to the corporation into lots, blocks, squares, factory sites, and other convenient forms, and lease, sell and dispose of the same, and to lay out, plot and dedicate to public use, or otherwise, streets, avenues, alleys, and parks. [2326]

12. To construct, purchase, acquire, own, improve, lease from and to other corporations and individuals, maintain, use and operate locks, canals, ditches, flumes, basins and dams.

13. To construct, purchase, acquire, own, improve, lease from and to other corporations and individuals, and maintain steamboats, launches, and other boats and use and operate them on the Willamette and Columbia Rivers, and other streams.

14. To conduct lumbering operations and enter-

Exhibit A-1—(Continued)

prises, and to construct, purchase, acquire, own, improve, lease from and to other corporations and individuals, maintain, use, and operate sawmills, and to manufacture sawmill products.

15. To purchase, acquire, own, improve, lease from and to other corporations, and individuals, maintain, use and operate mines and quarries and to manufacture, furnish, and sell crushed rock, Belgian Blocks, and other commodities that are manufactured from the products of its mines and quarries.

16. To acquire, own, use, deal in, furnish, and sell timber, lumber, sawmill products, logs, wood, cordwood, fuel, gravel, earth, stone, coal, and other minerals.

17. To make, grade, pave, and improve any street or highway or public or private place, or to erect or construct any building or other structure for itself or others.

18. To construct, purchase, acquire, own, improve, lease from and to other corporations and individuals, maintain, use, and operate wires, poles, conduits, subways, apparatus, and appliances, plans, and other properties necessary or convenient for the generation, manufacture or production of any commodity, fluid, force, matter, or thing which it is authorized to generate, manufacture, or produce, or for the sale, furnishing, distributing, or transmission of the same to persons, corporations, towns, cities, or other purchasers or consumers.

Exhibit A-1—(Continued)

to time be determined by the holders of a majority of the then outstanding common stock; each such authorized issue of preferred stock to be of such class, with or without par value, in such number of shares and/or aggregate amount, and having such rights, privileges, priorities and be subject to redemption or retirement upon such terms and conditions as may be prescribed in the resolution [2334] of the holders of a majority of common stock at the time of the authorization of any class or issue of preferred stock."

Such resolution was adopted by a vote of the majority of the stock of such corporation.

Witness my hand and the seal of said corporation affixed this 16th day of January, 1948.

[Seal] /s/ CLARENCE D. PHILLIPS,
Secretary. [2335]

State of Oregon,
County of Multnomah—ss.

I, Clarence D. Phillips, being first duly sworn, upon my oath depose and say that I am secretary of Portland General Electric Company, a corporation; that the foregoing statement is true, and that the resolution set forth therein is a full and complete copy of the resolution adopted at the meeting of the stockholders of said corporation, held at the time and place above set forth, for the purpose of increasing the capital stock of said corporation; that there was present, either in person or by proxy, a majority of the stock of said corporation;

Exhibit A-1—(Continued)

and that said resolution increasing the capital stock of Portland General Electric Company, a corporation, from 500,000 shares common stock of no par value to 1,500,000 shares common stock of no par value was duly adopted by a vote of the majority of the stock of such corporation.

/s/ CLARENCE D. PHILLIPS

Subscribed and sworn to before me this 16th day of January, 1948.

[Seal] /s/ RUTH H. OLSON,

Notary Public for Oregon. My commission expires: Dec. 25, 1950. [2336]

Endorsed: 34142. Supplementary Articles of Incorporation of Portland General Electric Company. Filed in the office of the Corporation Commissioner of the State of Oregon at 8:30 o'clock a.m., the 16th day of January, 1948. Maurice Hudson, Corporation Commissioner. [2337]

BY-LAWS OF THE PORTLAND GENERAL ELECTRIC COMPANY

Article I.

Location of Offices.

The principal office of this corporation shall be in the City of Portland, Oregon, at such place as the Board of Directors may from time to time designate, and the Company shall have and maintain such other offices and such agencies as the Board of Directors may deem expedient.

Exhibit A-1—(Continued)

Article II.

Corporate Seal.

The corporation shall have a common seal with the name of Company enclosed in a circle.

Article III.

Meetings of Stockholders.

Section 1. The annual meeting of the stockholders shall be held on the second Wednesday of March in each year, or within sixty days thereafter, upon such day as the Board of Directors or the President of the Company may designate, at the principal office of the Company, for the election of a Board of Directors to serve for the ensuing year and until their successors are elected and qualified, and for the transaction of any other business that may be brought before such meeting. In case of the failure to hold such meeting or to hold said election for any cause, said election may take place at any special meeting of the stockholders called for the purpose at the principal office of the Company in the City of Portland, Oregon.

Section 2. Notice of any annual or special meeting of the stockholders shall be mailed to each stockholder at his last known address, as the same appears on the stock books of the Company, at least ten days prior to the meeting. Such notice shall specify the time and place of holding the said meeting and shall further specify the date for closing the transfer books of the Company, provided the Board of Directors shall have decided to close the same in pursuance of Section 6 of this Article. The notice of any special meeting shall, in addition, state the

Exhibit A-1—(Continued)

object or objects for which said meeting is called, and no business except such as is specified in said notice shall be transacted at any such special meeting.

Section 3. Special meetings of the stockholders may be called by the Board of Directors of the Company, or under the written direction of a majority of the Board of Directors by the President, any Vice-President or any Secretary of the Company, or by stockholders holding together not less than one-fourth of the total capital stock, notice to be given as above set forth. Such meetings shall be held at the principal office of the Company, or if the Board of Directors shall designate another place, then at such other place within the State of Oregon as may be designated by the Board of Directors of the Company.

Section 4. The holders of a majority of the stock of the Company issued and outstanding shall constitute a quorum for the transaction of business at any meeting of the stockholders, but a less number may convene any meeting and may adjourn the same from time to time until a quorum shall be present, and no notice of any such adjournment shall be necessary.

Section 5. Stockholders may vote at all meetings either in person or by proxy. At all meetings, each share of stock shall be entitled to vote on all questions which may come before the meeting for decision, except questions which the common stockholders alone are to determine under the provisions of the Articles of Incorporation and a majority of

Exhibit A-1—(Continued)

the votes cast at any such meeting shall be sufficient for the adoption or rejection of any questions presented unless otherwise provided by law.

Section 6. The stock transfer books of the Company may be closed by order of the Board of Directors for such period, not to exceed thirty days, previous to any meeting of the stockholders, or previous to the payment of any dividend upon the stock of the Company, as the Board may determine during which time no transfer of stock on the books of the Company shall be made, and said books shall be reopened the day following the date fixed for such meeting, or for the payment of such dividend. Every stockholder who appears of record at the time the transfer books of the Company are closed shall be entitled to vote at such meeting, and to receive the dividend on account of the payment of which the books are closed.

At any election of Directors the transfer books of the corporation may be produced to test the qualifications of the voters.

Article IV.

Election of Directors.

Section 1. The Board of Directors shall consist of eleven directors, who shall be stockholders of this corporation. The Directors shall be elected at the annual meeting of the stockholders, provided, however, that the Directors selected pursuant to the plan of reorganization of Portland Electric Power Company shall serve until the annual meeting of the stockholders in the year 1949. A majority of the Directors shall be residents of the State of Ore-

Exhibit A-1—(Continued)

gon and before entering upon the discharge of their duties the Directors shall each take and subscribe on oath to faithfully and honestly discharge such duties. Except as to the Director selected pursuant to the plan of reorganization of Portland Electric Power Company, the Directors shall continue in office until the [2339] next annual meeting after their election and thereafter until their successors are duly elected and qualified. Any vacancy or vacancies in the Board arising from any cause may be filled by the remaining Directors until the next election of Directors by the stockholders.

Article V.

Meetings of Directors.

Section 1. Regular meetings of the Board of Directors shall be held at the principal office of the Company on the second and fourth Tuesdays in each month at 2:00 o'clock p.m. if not a legal holiday, and if a legal holiday then on the next succeeding Tuesday not a legal holiday. No notice shall be required for a regular meeting. Special meetings of the Board of Directors may be held at any time, at the principal office of the Company or elsewhere, either inside or outside the State of Oregon, on call of the Secretary or Assistant Secretary, acting upon the order of the Chairman, President or any Vice-President or any three Directors then in office, of which meetings reasonable notice, in writing or otherwise, shall be given to each Director, or sent to his residence or place of business, the time and place for holding the meeting to be designated in the notice. Unless other-

Exhibit A-1—(Continued)

wise indicated in the notice calling the meeting, any and all business may be transacted at any such special meeting.

Section 2. A meeting of the Board of Directors for organization may be held without notice, immediately after the meeting of the stockholders at which such Board of Directors is elected, at which meeting officers of the Company, including members of the Executive Committee and a Chairman of said Committee, may be chosen, and any other business may be transacted.

Section 3. A majority of the Board of Directors shall constitute a quorum at all regular, stated or special meetings of the Board of Directors, provided, however, that in case the number of Directors shall be increased to exceed nine, then, and in that event, five members shall constitute a quorum at all regular, stated or special meetings of the Board of Directors; a less number of Directors than a quorum may convene and adjourn a meeting of the Board of Directors from time to time, until a quorum is present, of which adjournments no notice need be given. All questions coming before any meeting of the Board of Directors for action shall be decided by a majority vote of the Directors present at said meeting, unless otherwise provided in these By-Laws.

Article VI.

Officers and Executive Committee.

Section 1. The Board of Directors may choose at their pleasure from their own body a chairman of the Board of Directors, a President of the

Exhibit A-1—(Continued)

Company and an Executive Committee of not less than three nor more than seven members including the President, who shall be a member ex-officio, and may designate one member of the Executive Committee to act [2340] as chairman. They may also choose from their own body, or otherwise as they see fit, an Executive Vice-President, one or more Vice-Presidents (the number to be determined by the Board), one or more Assistant Vice-Presidents (the number to be determined by the Board), a Treasurer, one or more Assistant Treasurers (the number to be determined by the Board), a Secretary and one or more Assistant Secretaries (the number to be determined by the Board). The offices of Treasurer and Secretary, or of Treasurer and Assistant Secretary, or of Secretary and Assistant Treasurer, or of Assistant Treasurer and Assistant Secretary may respectively be united in one person. All officers, including members of the Executive Committee, shall hold their offices for one year and until their successors are chosen and duly qualified, provided, however, that the Board of Directors shall have the power at any time to remove from their offices any of such officers, including members of the Executive Committee, or its Chairman as well as any other agent or employe of the Company whether appointed by said Board or otherwise. The Board of Directors may fill vacancies in the Executive Committee by election from the Directors, and if an executive committee is created it shall be the duty of the Board to keep the membership of said committee full.

Exhibit A-1—(Continued)

Article VII.

Duties of Directors and Officers.

Section 1. The Board of Directors shall have and exercise all the powers and authority granted by law to the Company, except in such matters as may be specially excepted by the By-Laws or the laws of the State of Oregon, and they are empowered to devise and carry into execution any agreements and contracts and to do all things lawful which in their opinion are expedient to be done in the management of the Company. They shall have the power to delegate from time to time such authority as they may deem necessary to any one or more members of the Board acting as a Committee, in order that the business of the Company may be transacted with promptness and dispatch. The President shall ex-officio be a member of all Committees.

Section 2. The Executive Committee shall have the general supervision, management and direction of the property, business and interest of the Company, and shall possess and exercise all the powers of the full Board of Directors during the recesses thereof, and shall submit to the Board of Directors at their regular meetings, or oftener if required, a report upon the general condition of the Company and any action taken by them.

The Executive Committee may act by resolution or resolutions reduced to writing and signed by a majority of the Committee without the formality of a meeting; provided, however, that for the information of the other members of the Committee

Exhibit A-1—(Continued)

a copy of such resolution or resolutions shall forthwith be mailed to each. [2341]

Section 3. It shall be the duty of the President to preside at all meetings of the stockholders, and in the absence of the Chairman of the Board of Directors to preside at all meetings of the Board of Directors; to sign all certificates of stock, bonds, deeds, evidences of debt, debentures or other documents made, executed or entered into by or on behalf of the corporation requiring the corporate seal, to countersign all checks, drafts or orders for payment of money signed by the Treasurer or Assistant Treasurer, or other person as directed by the Board of Directors; in addition to the powers hereinabove in this Section provided, the President shall, subject to the direction and to the extent provided by action of the Board of Directors, exercise such other duties as may be prescribed by the Board of Directors from time to time and, also subject to the action or approval of the Board of Directors, shall appoint, prescribe the duties of, fix the compensation of, and discharge such agents and employees (other than officers) of the company as he may deem necessary for the proper conduct of the business of the Company.

It shall be the duty of the Chairman of the Board of Directors to preside at all meetings of the Board of Directors; have authority to sign certificates of stock, bonds, deeds, evidences of debt, debentures or other documents made, executed or entered into by or on behalf of the corporation requiring the corporate seal; to countersign checks,

Exhibit A-1—(Continued)

drafts or orders for payment of money signed by the Treasurer or Assistant Treasurer, or other person as directed by the Board of Directors; and to perform such other duties as may be prescribed by the Board of Directors from time to time. Subject to the supervision and direction of the Board of Directors, the Chairman of the Board of Directors shall have supervision of the financial affiairs of the Company, including the preparation of the annual budget, rate proceedings and rate adjustments and such other matters as may be specifically delegated to him by the Board of Directors.

Section 4. The Executive Vice-President shall possess all the powers of the President in the absence or disability of the President, and such powers of the President as may be delegated by the President to him. The Vice Presidents shall possess all the powers of the President in the absence or disability of the President and of the Executive Vice-President. The Assistant Vice-Presidents shall possess all of the powers of the Vice-Presidents in the absence or disability of the President, the Executive Vice-President and the Vice-Presidents. The Executive Vice-President, the Vice-Presidents and the Assistant Vice-Presidents shall attend to such other business as the Board of Directors or the President may from time to time request.

Section 5. The Chairman of the Executive Committee during the intervals between the meetings of the Executive Committee shall possess and may exercise such of the powers vested in the Executive Committee as from time to time may be con-

Exhibit A-1—(Continued)

ferred upon him by resolution of the Board of Directors or of the Executive Committee. [2342]

Section 6. The Treasurer shall receive and be responsible for all cash, notes and securities of the Company and shall be authorized to give receipts for moneys due and payable to the Company from whatever source, and to endorse checks, drafts and warrants in the name of the Company. All funds of the Company shall be deposited to the credit of the Company in such Banks or Trust Companies as the Directors may from time to time designate. The Treasurer shall keep proper books of account for the Company and such other books as the Board of Directors may from time to time direct; he shall pay out money as the business of the Company may require, taking proper vouchers, and shall attend to such other duties as pertain to his office or may be assigned to him from time to time by the Board of Directors, the Executive Committee or the President.

Section 7. The Assistant Treasurers shall perform such duties as may be assigned to them from time to time by the Board of Directors, the Executive Committee or the President, and in the absence or disability of the Treasurer and also at any time under the direction of the Treasurer, shall act with all the powers of the Treasurer.

Section 8. The Secretary shall act as Secretary at all meeting of the stockholders and Directors and shall record all the minutes of the meetings of the stockholders and directors in a book to be kept for that purpose, and shall keep such

Exhibit A-1—(Continued)

other books and perform such other duties as pertain to his office or may be assigned to him from time to time by the Board of Directors, the Executive Committee or the President. In the absence of the Secretary and of the Assistant Secretaries at any meeting of the stockholders or Directors, the presiding officer may appoint any other person to act as Secretary of the meeting.

Section 9. The Assistant Secretaries shall perform such duties as may be assigned to them from time to time by the Board of Directors, the Executive Committee or the President, and shall in the absence or disability of the Secretary and also at any time under the direction of the Secretary, act with all the powers of the Secretary.

Section 10. Compensation of the Executive Committee, Chairman of the Board of Directors and President, shall be fixed by the Board of Directors, and except in the case of special contract shall have a specified sum per month or fraction of a year. The Board of Directors, acting upon the recommendation of the Chairman and the President, also shall fix or approve the compensation of the various other officers of the Company. The compensation of Directors and members of the Executive Committee for attending meetings of the Board or Executive Committee respectively or any special committee meeting, shall be $50.00 per meeting and be reimbursed for all reasonable expenses, but no Director who shall receive from the Company a salary as an officer, agent, or employee shall be entitled to receive any additional compensation f-

Exhibit A-1—(Continued)

attending any meeting of the Board or the Executive Committee or any other committee. Directors shall be [2343] compensated for any special services performed for the Company in such form and in such amount as may be determined by the Board of Directors.

Section 11. The Treasurer and Assistant Treasurers shall give, and other officers, agents and employees of the Company may be required to give, at the expense of the Company, bonds in such amount and form and with such sureties as the Board of Directors may require and approve, for the faithful discharge of the duties of their respective offices and positions.

Section 12. Each past, present or future Director and Officer of this corporation shall be indemnified by the corporation against any costs and expenses imposed upon him and against reasonable costs and expenses incurred by him in connection with any claim, suit, action, hearing or proceeding in court before an administrative board, or otherwise, in which he may be involved directly or indirectly by reason of his being or having been a Director or Officer, or either, of this corporation (whether or not he continues to be a Director and Officer, or either, at the time of the imposition or incurring of such costs or expenses); "costs and expenses" shall be construed in their broadest sense and shall include any reasonable settlement made with the consent of the corporation or any judgment rendered against such Director or Officer. It is the intention of this By-Law to recognize the

Exhibit A-1—(Continued)

responsibility inherent in being a Director and Officer, or either, of Portland General Electric Company, and by means of the foregoing provision to protect and indemnify the individual who has held, is holding, or will hold such positions or any of them against any personal liability for his actions unless such actions involve individual dishonesty.

Article VIII.

Checks, Drafts and Negotiable Instruments.

All checks, drafts, and negotiable instruments shall be made in the name of the Company, and shall be signed by such one of the officers of the Company, and countersigned by such other officer of the Company, or by such other person, as the Board of Directors may from time to time direct. The same person shall not, however, sign and countersign the same instruments.

Article IX.

Fiscal Year.

The fiscal year of the Company shall commence on the first day of January and end December 31st, in each year. [2344]

Article X.

Section 1. Until a successor shall be selected by the Board of Directors, The United States National Bank of Portland, (Oregon) shall be transfer agent for the capital stock of this corporation and for all scrip certificates for fractional shares thereof.

Until the Board of Directors shall otherwise provide, stock certificates shall be issued only for full

Exhibit A-1—(Continued)

shares of stock and shall be in the form of Exhibit 1 hereto annexed. Until the Board of Directors shall otherwise provide, scrip certificates shall be issued for fractional shares for one tenth of a share or any multiple thereof less than a full share and shall be in the form of Exhibit 2 hereto annexed and shall entitle the holder to the rights and privileges therein set forth. Every certificate for a full share of stock and every scrip certificate shall be signed in the name of the Company by the President and Secretary and sealed with the corporate seal, but where such certificate is countersigned by the transfer agent the signature of the President and the Secretary upon such certificate and the corporate seal may be a facsimile engraved or printed. Such facsimile signature of the President and Secretary may be those of any person who shall have been such President or Secretary, as the case may be, notwithstanding that such person may have ceased to be such officer at the time when such certificate shall be actually countersigned by the transfer agent. Except where sufficient scrip certificates are surrendered for one or more full shares, no new stock certificate for full shares of stock shall be issued by the transfer agent except upon the transfer, surrender and cancellation of the old certificates for an equal number of shares of said stock except, however, in cases where it is claimed that certificates have been lost or destroyed, in which cases the new issue may be made as provided hereinafter in this by-law.

All stock certificates shall be consecutively num-

Exhibit A-1—(Continued)

bered. All scrip certificates shall be numbered as follows:

Those for 1/10 consecutively with the suffix S-1.

Those for 2/10 consecutively with the suffix S-2.

Those for 3/10 consecutively with the suffix S-3.

Those for 4/10 consecutively with the suffix S-4.

Those for 5/10 consecutively with the suffix S-5.

Those for 6/10 consecutively with the suffix S-6.

Those for 7/10 consecutively with the suffix S-7.

Those for 8/10 consecutively with the suffix S-8.

Those for 9/10 consecutively with the suffix S-9.

Any person claiming that a stock certificate has been lost or destroyed shall make an affidavit of such fact and, if required by the Board of Directors, advertise the same in such manner as the Board of Directors may require, and, if the Board of Directors so require, give the corporation a bond of indemnity in form and with one or more sureties satisfactory to said Board of Directors in at least double the value of the stock represented by said certificate, whereupon a new stock certificate may be issued of the same tenor and for the same number of shares as the certificate alleged to be lost or destroyed. [2345]

Section 2. In case of the loss or destruction of any certificate of stock a new certificate may be issued in lieu thereof, under such regulations and

Exhibit A-1—(Continued)

restrictions as the Board of Directors may from time to time prescribe, upon receipt from the owner of the stock of such security and such proof of loss or destruction as may be required by the Board.

Section 3. The Board of Directors has power and authority to make and may make such calls or assessments as it may think proper upon any unpaid stock of the corporation to the par or face value thereof, and such call or assessment may be made upon any class of the stock of the corporation and not upon all of the stock of the corporation at the same time. But such call or assessment shall be equal and uniform upon such class of the stock of the corporation upon which such call or assessment is made. In case any such call or assessment shall not be paid, the Board of Directors may cause the stock on which such call or assessment is made, of a delinquent stockholder, to be sold without judgment or execution; such sale shall be made at public auction, to the highest bidder, at the office of the corporation, at the City of Portland, in the State of Oregon, after a notice of not less than thirty days of the time and place of sale has been duly and regularly published in a daily newspaper of general circulation published in the City of Portland, in the State of Oregon, for a period of not less than thirty days consecutively (exclusive of Sundays), such newspaper to be designated by the Board of Directors of the corporation. A new certificate or new certificates of stock may be issued in place of the stock so

Exhibit A-1—(Continued)

sold even though the old certificate or certificates for the stock so sold shall not have been surrendered to the corporation. The corporation may be the purchaser of such stock at any such sale or sales and the corporation having purchased such stock may retain it in its treasury, re-issue it, or cancel the same as the Board of Directors shall determine. The proceeds of such sale and sales, above the sum or amount due on such call or assessment, and after deducting the reasonable costs and expenses of such sale and the cost and expense of such notice, shall be paid to the delinquent stockholder upon his application therefor.

Article XI.

Amendments.

These By-Laws may be amended, altered or repealed at any annual meeting of the stockholders of the Company by a vote of a majority in interest of the stockholders present. These By-Laws may also be amended, altered or repealed at any special meeting of the stockholders by a like vote, provided notice of the proposed amendment, alteration or repeal shall have been given in the notice of the meeting.

These By-Laws may also be amended, altered or repealed by the Board of Directors by a vote of a majority of all of the Directors of the Company given at any regular meeting. [2346]

These By-Laws may also be amended, altered or repealed by the Board of Directors by a vote of

Exhibit A-1—(Continued)

a majority of all of the Directors of the Company given at any special meeting of said Board; provided that the notice of said special meeting shall have specified that such amendment, alteration or repeal will be considered at said special meeting.

Certificate

I, Clarence D. Phillips, hereby certify that I am the duly appointed, qualified and acting Secretary of Portland General Electric Company, and of the Directors of said Company; that the above and foregoing is a full, true and correct copy of the By-Laws of Portland General Electric Company as the same appears of record in the records of said corporation.

Witness my hand and the seal of said corporation this eighth day of June, 1951.

. . . . . .

Secretary. [2347]

Certificate of Organization

I, Clarence D. Phillips, Secretary of Portland General Electric Company, do hereby certify that Portland General Electric Company was incorporated on the 24th day of July, 1930, and that the organization of said corporation was thereafter completed and that Supplementary Articles of Incorporation were adopted January 16, 1948, and filed in the office of the Corporation Commissioner of Oregon the same date, and that the corporation has been and is now existing as a corporation under the laws of the State of Oregon and authorized to proceed with the project applied for.

Exhibit A-1—(Continued)

I further certify that attached hereto is a true copy of the By-Laws with all amendments to date, and that the following is a true list of the principal officers and directors of the said corporation with the full name and official designation of each: Mr. Thos. W. Delzell, Chairman of the Board and Director, Electric Building, Portland, Oregon.

Mr. James H. Polhemus, President and Director, Electric Building, Portland, Oregon.

Mr. Frank M. Warren, Jr., Exec. Vice-President and Director, Electric Building, Portland, Oregon.

Mr. Geo. Sullivan, Vice-President, Electric Building, Portland, Oregon.

Mr. Waldemar Seton, Vice-President, Electric Building, Portland, Oregon.

Mr. T. W. Fryou, Treasurer, Electric Building, Portland, Oregon. [2348]

Mr. E. I. Snyder, Asst. Treasurer, Electric Building, Portland, Oregon.

Mr. Lester Park, Asst. Treasurer, Electric Building, Portland, Oregon.

Mr. Clarence D. Phillips, Secretary, 807 Electric Building, Portland, Oregon.

Mr. John J. Coughlin, Asst. Secretary, 807 Electric Building, Portland, Oregon.

Mr. Henry F. Cabell, Director, 1107 Failing Building, Portland, Oregon.

Exhibit A-1—(Continued)

Mr. Wm. C. Christensen, Director, 264 N. Third Avenue, Hillsboro, Oregon.

Mr. R. L. Clark, Director, 7709 N. Denver Avenue, Portland, Oregon.

Mr. Wade Newbegin, Director, 106 S. E. Hawthorne, Portland, Oregon.

Mr. Ralph Thom, Director, Bank of California, N. A., Box 3576, Portland, Oregon.

Mr. James J. Walton, Director, 236 State Street, Salem, Oregon.

Mr. Lloyd J. Wentworth, Director, 1024 Yeon Building, Portland, Oregon.

Mr. Sidney F. Woodbury, Director, 133 S. W. Second, Portland, Oregon.

Witness my hand and the seal of the corporation this eighth day of June, 1951.

.....

Clarence D. Phillips. [2349]

EXHIBIT B-1

Certified Resolution of the Board of Directors of Portland General Electric Company Adopted at Meeting Held May 23, 1951.

Be It Resolved that the officers of this corporation be and they hereby are authorized and empowered to make and enter into a contract with Northwest Power Supply Company under which this corporation would purchase from Northwest

Exhibit B-1—(Continued)

Power Supply Company any and all right, title and interest which the said Northwest Power Supply Company may have in and to a power project, including the right to construct dams and a powerhouse at the Pelton site on the Deschutes River together with any and all other properties now owned or hereafter acquired by said Northwest Power Supply Company, including, but not limited to, any and all rights in and to applications now filed with the Federal Power Commission, the Hydroelectric Commission of the State of Oregon, or any other governmental authority, or any licenses or permits issued pursuant thereto, and the assignment of any licenses or permits hereafter issued; provided, however, that said contract shall specifically provide that such sale, transfer and conveyance of assets to Portland General Electric Company shall only be made in the event that any and all necessary licenses or permits shall be procured from any necessary governmental authorities to enable the construction and operation of dams and a powerhouse at the Pelton site in Jefferson County, Oregon.

Be It Further Resolved that this corporation shall receive from the said Northwest Power Supply Company a proper assignment of that certain assignment and waiver heretofore executed by Central Oregon People's Utility District, a municipal corporation of the State of Oregon, executed on or about the 14th day of April, 1949.

Be It Further Resolved that the officers of this

Exhibit B-1—(Continued)

corporation be and they hereby are authorized and empowered to make, execute and file with the Federal Power Commission of the United States any and all necessary applications or supplemental applications for a license to authorize the construction, operation and maintenance of dams and a power plant at the Pelton site on the Deschutes River in Jefferson County, Oregon, in such form as may be prescribed by the rules of the Federal Power Commission.

Be It Further Resolved that the officers of this corporation be and they hereby are authorized and empowered to make, execute, deliver or file any and all necessary applications, supplements, amendments, instruments or documents which may be required or desirable in connection with any of said applications or in the consummation of a contract of sale and purchase herein authorized, and the executive officers shall report to this Board of Directors, the terms of such contract of sale and purchase. [2350]

Certificate

I, Clarence D. Phillips, hereby certify that I am the duly appointed, qualified and acting Secretary of Portland General Electric Company, and of the Directors of said Company; that the above and foregoing resolution was duly adopted at a duly called meeting of the Board of Directors of said Company held on May 23, 1951, and that the same is a true and correct copy of said resolution as the same appears of record in the minute records of said corporation.

Exhibit B-1—(Continued)

Witness my hand and the seal of said corporation this eighth day of June, 1951.

.....

Secretary.

The above exhibits are a part of the application for license made by the undersigned this eighth day of June, 1951.

NORTHWEST POWER SUPPLY COMPANY,

By.....

President.

PORTLAND GENERAL ELECTRIC COMPANY,

By.....

President. [2351]

EXHIBIT B-2

Minutes of Meeting of Stockholders of Northwest Power Supply Company

Pursuant to notice and waiver signed by all of the stockholders, a special meeting of the stockholders of Northwest Power Supply Company was held in the office of the President, Thomas M. Robins, Electric Building, Portland, Oregon, on Friday, June 8, 1951, at 10 o'clock a.m.

The following, being all of the stockholders, were present: Thomas M. Robins, Hillman Lueddemann, Howard W. Turner.

The Secretary presented a waiver of notice of

Exhibit B-2—(Continued)

the time and place of the holding of this meeting and a consent to the holding thereof signed by all the stockholders.

The President, Thomas M. Robins, presided, and the Secretary, Hillman Lueddemann, recorded the minutes of the meeting.

The President announced that the first business to come before the meeting was the consideration of a resolution authorizing the Directors to sell, assign, transfer and convey to Portland General Electric Company, a corporation of Oregon, subject to the conditions set forth in the following resolution, all of the right, title and interest which the said Northwest Power Supply Company has in and to any and all properties, property rights now owned or hereafter to be acquired, including, but not limited to, any and all licenses or permits of any kind or nature to be issued by the Federal Power Commission or the State of Oregon together with any and all other properties owned by this corporation for a consideration [2352] of $10.00 and other good and valuable considerations. After consideration and upon motion duly made, seconded and unanimously carried, the following resolution was adopted:

Be It Resolved that the officers of this corporation be and they hereby are authorized and empowered to make and enter into a contract with Portland General Electric Company under which this corporation shall sell to Portland General Elec-

Exhibit B-2—(Continued)

tric Company and Portland General Electric Company shall purchase from this corporation, any and all right, title and interest which this corporation may have in and to a power project, including the right to construct dams and a powerhouse at or near the Pelton site on the Deschutes River, Jefferson County, Oregon, together with any and all other properties now owned or hereafter acquired by this corporation, including, but not limited to, any and all rights in and to applications now filed with the Federal Power Commission, the Hydroelectric Commission of the State of Oregon, or any other governmental authority, or any licenses or permits issued pursuant thereto, and the assignment of any licenses or permits hereafter issued; provided, however, that said contract shall specifically provide that such sale, transfer and conveyance of said assets shall only be made in the event that any and all necessary licenses or permits shall be procured from any necessary governmental authorities to enable the construction and operation of the dams and powerhouse at the Pelton site in Jefferson County, Oregon.

Be It Further Resolved that this corporation shall sell, assign, transfer and set over unto Portland General Electric Company subject to the above conditions any and all interest which this corporation may have in and to that certain assignment and waiver heretofore executed by Central Oregon People's Utility District, a municipal corporation of the State of Oregon, executed on or about the 14th day of April, 1949.

Exhibit B-2—(Continued)

Be It Further Resolved that the officers of this corporation be and they hereby are authorized and empowered to file with the Federal Power Commission of the United States a supplemental application for a license to authorize the construction, operation and maintenance of such dams and power plant at or near the Pelton site on the Deschutes River in Jefferson County, Oregon, in such form as may be prescribed by the rules of the Federal Power Commission.

Be It Further Resolved that the officers of this corporation be and they hereby are authorized and empowered to make, execute and deliver or file any and all other applications, supplements, amendments, instruments or documents, or other necessary deeds, bills of sale or conveyances which may be required or desirable in connection with any of said applications, or in consummation of the contract of sale and purchase herein authorized.

No further business appearing before the meeting, upon motion duly made, seconded and unanimously carried, the meeting was adjourned.

.....

Secretary.

.....

Thomas M. Robins.

.....

Hillman Lueddemann

.....

Howard W. Turner.

Exhibit B-2—(Continued)

Certificate

I, Hillman Lueddemann, do hereby certify that I am Secretary of the Northwest Power Supply Company, an Oregon corporation, and that the foregoing is a full, true and complete copy of the minutes of a special meeting of the stockholders of said corporation held on the eighth day of June, 1951, and of the resolutions duly adopted at said meeting.

In Witness Whereof, I have hereunto set my hand and affixed the seal of said corporation this eighth day of June, 1951.

.....

Secretary [2354]

Minutes of Meeting of Board of Directors of Northwest Power Supply Company

A special meeting of the Board of Directors of Northwest Power Supply Company was held in the office of the President, Thomas M. Robins, Electric Building, Portland, Oregon, on Friday, June 8, 1951, at 10 o'clock a.m. immediately following a special meeting of the stockholders.

The following, being all of the Directors, were present: Thomas M. Robins, Hillman Lueddemann, Howard W. Turner, all of whom waived notice of the time and place of the holding of said meeting and consented to the holding thereof and attended said meeting and voted thereat.

The President, Thomas M. Robins, presided, and

Exhibit B-2—(Continued)

the Secretary, Hillman Lueddemann, recorded the minutes of the meeting.

The President announced the first business to come before the meeting was consideration of a resolution to carry out the resolution which had been adopted by the stockholders of this corporation at a meeting held immediately preceding this meeting. After consideration and upon motion duly made, seconded and unanimously carried, the following resolution was adopted:

Be It Resolved that the officers of this corporation be and they hereby are authorized and empowered to make and enter into a contract with Portland General Electric Company under which this corporation shall sell to Portland General Electric Company and Portland General Electric Company shall purchase from this [2355] corporation, any and all right, title and interest which this corporation may have in and to a power project, including the right to construct dams and a powerhouse at or near the Pelton site on the Deschutes River, Jefferson County, Oregon, together with and all other properties now owned or hereafter acquired by this corporation, including, but not limited to, any and all rights in and to applications now filed with the Federal Power Commission, the Hydroelectric Commission of the State of Oregon, or any other governmental authority, or any licenses or permits issued pursuant thereto, and the assignment of any licenses or permits hereafter issued, provided, however, that such contract shall speci-

Exhibit B-2—(Continued)

fically provide that such sale, transfer and conveyance of said assets shall only be made in the event that any and all necessary licenses or permits shall be procured from any necessary governmental authorities to enable the construction and operation of the dams and powerhouse at the Pelton site in Jefferson County, Oregon.

Be It Further Resolved that this corporation shall sell, assign, transfer and set over unto Portland General Electric Company subject to the above conditions any and all interest which this corporation may have in and to that certain assignment and waiver heretofore executed by Central Oregon People's Utility District, a municipal corporation of the State of Oregon, executed on or about the 14th day of April, 1949.

Be It Further Resolved that the officers of this corporation be and they hereby are authorized and empowered to file with the Federal Power Commission of the United States a supplemental application for a license to authorize the construction, operation and maintenance of such dams and power plant at or near the Pelton site on the Deschutes River in Jefferson County, Oregon, in such form as may be prescribed by the rules of the Federal Power Commission.

Be It Further Resolved that the officers of this corporation be and they hereby are authorized and empowered to make, execute and deliver or file any and all other applications, supplements, amendments, instruments or documents, or other neces-

Exhibit B-2—(Continued)

sary deeds, bills of sale or conveyances which may be required or desirable in connection with any of said applications, or in consummation of the contract of sale and purchase herein authorized.

Thereafter the President reported to the Directors the progress of the Pelton Project, after which there was a general discussion of the affairs of the corporation. [2356]

No further business appearing before the meeting, upon motion duly made, seconded and unanimously carried, the meeting was adjourned.

. . . . . .

Secretary.

. . . . . .

Thomas M. Robins.

. . . . . .

Hillman Lueddemann.

. . . . . .

Howard W. Turner.

Certificate

I, Hillman Lueddemann, do hereby certify that I am Secretary of the Northwest Power Supply Company, an Oregon corporation, and that the foregoing is a full, true and complete copy of the minutes of a special meeting of the Board of Directors of said corporation held on the eighth day of June, 1951, and of the resolutions duly adopted at said meeting.

Exhibit B-2—(Continued)

In Witness Whereof, I have hereunto set my hand and affixed the seal of said corporation this eighth day of June, 1951.

.....

Secretary.

The above exhibits are a part of the application for license made by the undersigned this eighth day of June, 1951.

NORTHWEST POWER SUPPLY COMPANY,

By.....

President.

PORTLAND GENERAL ELECTRIC COMPANY,

By.....

President. [2357]

EXHIBIT D

Compliance With the Laws of the State of Oregon

Under the Hydroelectric Act of Oregon, which is Chapter 1 of Title 119 Oregon Compiled Laws Annotated as amended, the applicant must obtain a license from the Hydroelectric Commission of Oregon authorizing the applicant to build and operate the Pelton Project and to appropriate water therefor. On January 20, 1949, the applicant filed with the Hydroelectric Commission of Oregon an application for a preliminary permit. On April 25, 1949, a hearing was held before the Hydroelectric Commission of Oregon on such application. On the 1st day of July, 1949, the Hydroelectric Commission entered an order which among other things provided that the Northwest Power Supply Company should file with the Fish Commission of Oregon an application for a permit to construct a dam across the Deschutes River at the Pelton site. On October 25, 1949, the Northwest Power Supply Company filed an application with the Fish Commission of Oregon for a permit to construct a dam at the Pelton site. No hearing was held on the original application, but thereafter the Fish Commission at a meeting held on August 22, 1950, denied said application. Supplemental application was filed with the Fish Commission of the State of Oregon showing changes in project plans in order to provide suitable facilities for the propagation of fish, including a reregulating dam, holding ponds and financial arrangements to pay for the

Exhibit D—(Continued)

extra cost of care and propagation of fish. Thereafter the Fish Commission of Oregon on May 15, 1951, again denied said application and supplemental application. The applicant has filed with the Hydroelectric Commission of the State of Oregon a supplementary application for a [2358] preliminary permit. No action has been taken by the Hydroelectric Commission on the supplementary application for preliminary permit.

The above exhibit is a part of the application for license made by the undersigned this eighth day of June, 1951.

NORTHWEST POWER SUPPLY COMPANY,

By.....

President.

PORTLAND GENERAL ELECTRIC COMPANY,

By.....

President. [2359]

EXHIBIT G-1

Statement Regarding Financial Ability of Portland General Electric Company

Contingent upon the issuance of a necessity certificate permitting the accelerated amortization for tax purposes of a substantial portion of the cost of the project, Portland General Electric Company believes it will have the necessary financial ability to carry out the project for which license is applied and to finance the construction thereof by the use of bank credit, the issuance and sale of bonds, notes, and other securities as may be considered appropriate.

This statement is a part of the application for license made by the undersigned this eighth day of June, 1951.

NORTHWEST POWER SUPPLY COMPANY,

By.....
President.

PORTLAND GENERAL ELECTRIC COMPANY,

By.....
President. [2360]

EXHIBIT I-1

Portland General Electric Company Generating Plants and Interconnections

Generating Plants:

Station	Type	Approx. Location	Source of Water	Present Capability MW	Ultimate Capacity MW
B	Hydro	West Linn, Oregon	Willamette River	5	5
G	Hydro	Faraday, Oregon	Clackamas River	17	17
M	Hydro	River Mill, Oregon	Clackamas River	17	22[1]
P	Hydro	Three Links, Oregon	Clackamas River	35	51[2]
O	Hydro	Bull Run, Oregon	Sandy and Little Sandy Rivers	22	22
Q	Hydro	Scotts Mills, Oregon	Butte Creek	0.10	0.10
S	Hydro	Salem, Oregon	Mill Creek	0.125	0.125
L	Steam	Portland, Oregon	——	85	85
E	Steam	Portland, Oregon	——	10	10
H	Steam	Salem, Oregon	——	3	3

[1] A 5 MW unit being installed is scheduled for operation by December, 1951.

[2] Installed capacity of 51 MW limited to 35 MW output by flow line.

Statement on Interconnections

The Portland General Electric Company system has eight connections for power interchange with the Bonneville Power Administration system, three with the system of the Pacific Power & Light Company, and is an integral part of the Northwest Power Pool. In addition three distributing customers of the Bonneville Power Administration are

Exhibit I-1—(Continued)

served directly from the Portland General Electric Company system, and the Mountain States Power Company receives at one tie.

The Portland General Electric Company receives minor deliveries of power from generating plants of four industrial sources.

The above exhibit is a part of the application for license made by the undersigned this eighth day of June, 1951.

NORTHWEST POWER SUPPLY COMPANY,

By.....

President.

PORTLAND GENERAL ELECTRIC COMPANY,

By.....

President.

F.P.C. Filed June 15, 1951. [2362]

In the Matter of Northwest Power Supply Company—Project No. 2030.

PETITION OF INTERVENTION

Comes now The Oregon Division of the Izaak Walton League of America, Inc., by and through its attorney, Rollin E. Bowles, and respectfully petitions the Federal Power Commission for leave to intervene, in opposition to the above named project, and alleges, as follows:

1. The Oregon Division of the Izaak Walton League of America, Inc., is a public body, com-

posed of members from every walk of life, with subordinate organizations in the various sections of the State of Oregon, organized for and dedicated to the purpose of conserving the natural resources of this State, in behalf of all of the citizens.

2. That neither the applicant nor the counsel for the Federal Power Commission have raised any objection to the Petitioner's request to intervene and that all formal parties have waived the necessity of service of this petition. [2363]

3. That the exclusive control and jurisdiction over anadromous fish inhabiting the Deschutes River of the State of Oregon and inhabiting its waters, and the regulation and control of the waters of said River rest exclusively within the jurisdiction of the State of Oregon.

4. That the Oregon State Fish Commission has created a hatchery for the purpose of perpetuating and increasing the runs of anadromous fish, and has expended large sums of money therefor, on the Metolius River, a tributary of the Deschutes River, the said construction being above the point of the proposed project; and that the runs of anadromous fish that will be injured and destroyed by this project are a natural resource that belong to all of the people of the State of Oregon, and that if this project is installed, a private corporation will be thus permitted to condemn the property of the State, without due process of law, and to the great prejudice and irreparable injury of the citizens.

5. That there has been a substantial run of anadromous fish, of several species, that inhabit and spawn in the area above the proposed project, and that the proposed project will destroy these runs of fish.

6. That the runs of fish and the river area to be flooded by the proposed project are of substantial value to the area, the State, and the Nation, for commercial and recreational purposes, which purposes will be thwarted and the [2364] benefits lost if the proposed project is completed.

7. That the proposed project, even with the liberal amortization possibilities afforded under the present law, is economically unsound, and will necessitate an increase in rates to the power consumer in order to sustain the productive capacity of this project.

8. That the proposal of the applicant for the handling of fish is a highly experimental proposal, with little prospect of success, and even if adopted and put into operation, would necessitate an expenditure by the State of Oregon of approximately $200,000 annually in excess of the amount proposed to be given by the applicant.

9. That the public has a definite and ascertainable interest in the resources that will be destroyed if the project is approved, as well as an interest in the additional burden that will be placed upon the users of this power and the taxpayers of this State, in order to afford the applicant a source of hydroelectric energy.

Wherefore, this intervenor prays that the applicant may answer to the premises and that as against the intervenor the applicant have no right to obstruct the waters of the said Deschutes River or any portion thereof by the proposed dam, and that this Commission should deny the applicant any license to construct said dam. [2365]

The Oregon Division of the Izaak Walton League of America, Inc.

By.....

Rollin E. Bowles, Attorney for Intervenor.

State of Oregon,
County of Multnomah—ss.

I, Rollin E. Bowles, being first duly sworn, say that I am the attorney for The Oregon Division of the Izaak Walton League of America, Inc., the intervenor in the within entitled petition of intervention, and that the foregoing petition of intervention is true as I verily believe.

.....

Subscribed and sworn to before me this .... day of June, 1951.

[Seal] .....

Notary Public for Oregon. My commission expires September 26, 1954.

F.P.C. Filed June 18, 1951. [2366]

[Title of Commission and Cause.]

PETITION FOR LEAVE TO INTERVENE

Now comes the State of Oregon, acting through the Oregon Fish Commission and the Oregon State Game Commission, and begs leave to intervene in this proceeding and as grounds for such motion states that the rights and interests of the petitioner in the proceeding is as follows:

1. The Deschutes River and its tributaries are wholly within the State of Oregon and are non-navigable streams.

2. The Deschutes River and its tributaries carry no commerce.

3. The waters of the Deschutes River and its tributaries sought to be impounded, used, utilized, diverted and appropriated by the applicant in the construction of said project and other facilities in connection therewith are the exclusive property of the State of Oregon.

4. The waters of the Deschutes River and its tributaries, under the laws of the State of Oregon, have been reserved to the public and are not subject to appropriation by the applicant without its consent. [2368]

5. Under the laws of the State of Oregon, the applicant must obtain a license from the Hydro-electric Commission of said State to build and to operate therein and to appropriate the waters of said Deschutes River.

6. Applicant has not obtained from the Hydroelectric Commission of the State of Oregon a license to build, operate or to appropriate the waters of the Deschutes River.

7. Under the laws of the State of Oregon, the applicant may not construct the dam in question without first having obtained from the Fish Commission of the State of Oregon a permit so to do.

8. The application and supplemental application of the applicant herein filed with the Fish Commission of Oregon for a permit to construct a dam across the Deschutes River at the Pelton site, have been denied.

9. The applicant has filed with the Hydroelectric Commission of the State of Oregon a supplementary application for a preliminary permit. No action has been taken by said Hydroelectric Commission for preliminary permit.

10. The applicant has not obtained from the Hydroelectric Commission of the State of Oregon a license authorizing it to construct a dam in the Deschutes River.

11. The Deschutes River and its tributaries support substantial runs of salmon, steelhead and trout. The upper portions of the Deschutes River above the Pelton site and its tributaries above such site are the natural spawning grounds for all such fish. [2369]

12. The construction of a dam across the Deschutes River at the Pelton site would destroy sal-

mon, steelhead and other anadromous and migratory fish by preventing migration to their spawning grounds above said dam site in said river and its tributaries.

13. The State of Oregon, in conjunction with the State of Washington and the United State Government, has expended large sums of money in the development of the lower Columbia River fisheries, of which the Deschutes is a major tributary.

14. The destruction of migratory fish and their spawning grounds in the Deschutes and its tributaries would cause inestimable and irreparable damage to the State of Oregon.

15. The State of Oregon has independently expended large sums of money in the management, protection, preservation, propagation and promotion of food and game fish in the Deschutes River and its tributaries.

The petitioner alleges:

The Congress has no jurisdiction over the Deschutes River and its tributaries.

No lands of the United States will be affected by the construction of a dam across the Deschutes River at the Pelton site.

The applicant does not propose the transmission and sale or either such transmission or sale of electric energy in interstate commerce.

The public convenience and necessity do not re-

quire or justify the construction and operation of the project. [2370]

The construction of the proposed project on the Deschutes River will not affect a navigable stream.

The United States of America has no right, title or interest, other than as trustee, in any lands which will be affected by the construction of the proposed project.

Wherefore, petitioner prays that the application for a license F. P. C. Project No. 2030 be denied.

Dated this twenty-seventh day of June, 1951.

/s/ GEORGE NEUNER,
Attorney General, State of Oregon

/s/ ARTHUR G. HIGGS,
Assistant Attorney General, State of Oregon

Attorneys for the Petitioner, State of Oregon, Oregon Fish Commission and Oregon State Game Commission. [2371]

State of Oregon,
County of Multnomah—ss.

Arthur G. Higgs, being first duly sworn upon his oath, disposes and says that he is an Assistant Attorney General for the State of Oregon and is one of the attorneys for the above named petitioner; that he has read the above and foregoing petition for Leave to Intervene in the above proceedings and knows the contents thereof and that the

statements of fact contained therein are true as he verily believes.

/s/ ARTHUR G. HIGGS,
Affiant.

Subscribed and sworn to before me, a Notary Public, by Arthur G. Higgs, this twenty-eighth day of June, 1951.

/s/ SUSANNE DAVIS,
Notary Public, State of Oregon. My Commission expires March 10, 1952.

Certificate of Service attached.

F.P.C. Filed July 2, 1951. [2372]

United States of America
Federal Power Commission

July 3, 1951

Before Commissioners: Mon C. Wallgren, Chairman; Thomas C. Buchanan, Claude L. Draper, Nelson Lee Smith and Harrington Wimberly.

In the Matter of Northwest Power Supply Company—Project No. 2030.

ORDER DENYING MOTION FOR OMISSION OF INTERMEDIATE DECISION PROCEDURE

On June 20, 1951, which was the last day of the hearing on the application of Northwest Power Supply Company (Applicant) for license to con-

struct, operate, and maintain a water power project on the Deschutes River in Oregon, counsel for Applicant and for Portland General Electric Company made an oral motion on the record for waiver of the intermediate decision procedure by omitting the recommended decision of the Presiding Examiner required by our order dated April 24, 1951.

Counsel for interveners and Commission Staff Counsel oppose Applicant's motion.

The Commission finds:

This proceeding is not a proper one for disposition by omission of the intermediate decision procedure under Section 1.30(c) of the Commission's Rules of Practice and Procedure.

The Commission orders:

Applicant's motion for omission of the intermediate decision procedure be and the same hereby is denied.

By the Commission.

LEON M. FUQUAY,
Secretary.

Date of Issuance: July 5, 1951. [2374]

[Title of Commission and Cause.]

PRESIDING EXAMINER'S CERTIFICATION OF RECORD OF HEARING

To the Secretary:

It is hereby certified that the following documents constitute the Record made before the Presiding Examiner in the hearing in the above-entitled matter, pursuant to the Commission's order issued on May 1, 1951.

The official reporter's transcript of the hearing which commenced on June 11, 1951, and which ended on June 20, 1951, in 8 volumes consisting of 1,537 pages, and the original exhibits which were received in evidence at such hearing, viz:

Exhibit

1. Copy of Agreement between the Pacific Coast States of Oregon, Washington and Idaho, respecting the Lower Columbia River Fishery Program.
2. Copy of Biennial Report of the Fish Commission of the State of Oregon, for 1951.
3. Plan and Profile, Deschutes River, (FPC).
4. Letter from Acting Secretary, Department of Agriculture to Secretary, F.P.C. dated July 28, 1949.
5. Letter from Arnold, Office of the Chief of Engineers, Department of the Army, to Chief, Licensed Projects Division, dated August 3, 1949.
6. Letter from Acting Secretary, Department of the Interior to Chairman, F.P.C. dated September 15, 1949.
7. Letter from Secretary, Department of the Interior to Chairman, F.P.C. dated June 11, 1951.

8. Letter from Hydroelectric Commission of Oregon to Northwest Power Supply Company with attached order, dated July 6, 1949.

9. Letter from Oregon Fish Commission with attached excerpts from minutes of meeting of August 22, 1950, dated September 1, 1950.

10. Letter from Northwest Power Supply Company to Oregon Fish Commission, dated April 6, 1951.

11. Supplement (undated) to Application for Preliminary Permit by Northwest Power Supply Company, addressed to Hydroelectric Commission of Oregon, also joined in by Portland General Electric Co. and having a copy of the order of the Oregon Fish Commission dated May 15, 1951, attached.

12. Outline of costs of hatchery salvage operation on Deschutes River, signed by D. L. McKernan in October, 1949.

13. Letter from Portland General Electric Company to Oregon Fish Commission dated April 16, 1951.

14. Tabulation entitled "Pelton Project No. 2030, Estimate of Annual Cost and Value, Power only, 108,000 kilowatts."

15. Tabulation entitled "Value of Potential Power Output, Proposed Pelton Project No. 2030, based on estimated costs of power from Alternative Steam-Electric Generating Station."

16. Tabulation entitled "Past and Estimated Future Electric Power Requirements of the System of the Portland General Electric Company." [2398]

17. Tabulation entitled "Estimate of Dependable

Capacity of Proposed Pelton Project No. 2030 on the estimated 1955 Load of the Electric System of the Portland General Electric Company."

18. Tabulation entitled "Estimate of Dependable Capacity of Proposed Pelton Project No. 2030 on the estimated 1960 Load of the Electric System of the Portland General Electric Company."

19. Graph: "Daily Load Curve Sheet, December, 1960, Peak Day, December Weekday, Portland General Electric Company."

20. Tabulation entitled "Past and Estimated Future Electric Power Requirements for the Western Group of Northwest Power Pool operating in Northwest Region VII."

21. Tabulation entitled "Past and Estimated Future Electric Power Requirements and Power Supply for the smaller Electric Systems connected to the Western Group of the Northwest Power Pool in Region VII."

22-A. Tabulation entitled: "Estimated Future Electric Power Supply for the Systems Comprising the Western Group of the Northwest Power Pool Operating in Region VII—Sheet 1 of 2.

22-B. Tabulation entitled "Estimated Future Electric Power Supply for the Systems Comprising the Western Group of the Northwest Power Pool operating in Region VII—Sheet 2 of 2."

23. Letter from Regional Office, Bureau of Reclamation, Department of the Interior to Portland General Electric Company, with attachment, dated April 20, 1951.

24. Letter from the Northwest Power Supply

Company to the Regional Office of the Bureau of Reclamation in Boise, Idaho, dated May 10, 1951.

25. Advance Program for Defense of the Bonneville Power Administration.

26. Tabulation entitled "Portland General Electric Company, Net System Load."

27. Tabulation entitled "Estimated Annual Cost of Power from proposed Pelton Project 120,000 kw Rates Capacity.

28. Extract (pp, 42 thru 55) from Vol. 78 of Transactions of the American Fisheries Society entitled "The Fishery Development Program in the Lower Columbia River" by Leo L. Laythe.

29. Biennial Report of the Oregon State Game Commission, 1949-1950.

30-A. Map: Upper Deschutes Drainage and Spawning Ground Survey, Sheet 1.

30-B. Same as Ex. 30-A, except Sheet 2.

30-C. Same as Ex. 30-A, and 30-B, except Sheet 3.

31. Statement entitled "The Fisheries Resources of the Deschutes Basin" by Donald L. McKernan and Donald R. Johnson, dated June, 1951.

32. Statement entitled "Statement submitted June 19, 1951, to the Federal Power Commission concerning the Proposed Pelton Dam Project by Washington State Department of Fisheries."

33. Letter from Oregon Fish Commission to Portland General Electric Company, dated March 7, 1951.

34. Tabulation entitled "Summary of Production and Operation Costs of Fish and Wildlife Serv-

ice Hatcheries in Washington, Oregon, California and Idaho, 1945-1949." [2400]

35. Annual Report for 1949 of the Washington State Department of Fisheries.

Item A. By reference under rules, Application for License for Project No. 57, and all formal amendments, supplements thereto and orders of the Commission with respect thereto.

Item B-1. Application for license, Project No. 2030, filed May 23, 1949.

Item B-2. Supplement to Application for License for Project No. 2030 filed April 9, 1951.

Item B-3. Supplement No. 2 to Application for License for Project No. 2030 filed June 15, 1951.

One set of the 8 volumes of the official reporter's transcript, and one set of the foregoing exhibits, except the items received by reference under the Rules, are transmitted herewith.

The following documents were considered by the undersigned Examiner on the basis of official notice:

Review Report on Columbia River and Tributaries, Corps of Engineers, Department of the Army, North Pacific Division, October 1, 1948, and Appendix K and Appendix P to the aforesaid Review Report.

Letter from the Chief of Engineers, Department of the Army to the Secretary of the Army dated June 28, 1949.

Letter by Nelson Lee Smith, Chairman, Federal Power Commission to Major General Lewis A. Pick, Chief of Engineers, Department of the Army, dated June 21, 1949.

The Report of the President's Water Resources Policy Commission, Volume II "Ten Rivers in America's Future" Part I—Basins of the West—No. 1, The Columbia, Chapter 1 through 8, inclusive.

Letter from the President of the United States to Mon C. Wallgren, Chairman, Federal Power Commission, dated March 14, 1951.

House Document No. 308, 62d Congress, 1st Sess.

Recommended Decision with Supplement and Appendices in the Matter of City of Tacoma, Washington, Project No. 2016, upon an application to construct, operate, and maintain a hydroelectric project on the Cowlitz River in the State of Washington, dated July 19, 1951, and issued July 23, 1951.

The following appearances (as shown by the official transcript which accompanies this certification) were entered by counsel at the hearing:

For the Applicant, Northwest Power Supply Company (and Portland General Electric Company): Clarence D. Phillips, 807 Electric Building, Portland 5, Oregon.

For Intervener, State of Oregon, Oregon Fish Commission and Oregon Game Commission: Arthur G. Higgs, Assistant Attorney General, 1634 Southwest Alder, Portland, Oregon.

For Intervener, Sellwood Chapter, Isaac Walton League of America, Inc.: Rollin E. Bowles, 201 Weatherly Building, Portland, Oregon.

For Tribal Council, Warm Springs Indian Reservation of Oregon: T. M. Brown, The Dalles, Oregon.

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SUPREME COURT, U.S.

VOLUME II

TRANSCRIPT OF RECORD

SUPREME COURT OF THE UNITED STATES

OCTOBER TERM, 1954

No. 367

FEDERAL POWER COMMISSION, PETITIONER

vs.

THE [illegible] COMMISSION OF
[illegible] POWER COMMISSION

No. 13345

United States
Court of Appeals
for the Ninth Circuit

THE STATE OF OREGON, THE FISH COMMISSION OF OREGON, THE OREGON STATE GAME COMMISSION,
Petitioners,

vs.

FEDERAL POWER COMMISSION,
Respondent.

PORTLAND GENERAL ELECTRIC COMPANY,
Intervenor.

Transcript of Record

Petition for Review to Set Aside an Order of the Federal Power Commission

In Three Volumes

VOLUME II.

(Pages 321 to 680, inclusive)

For the Staff of the Federal Power Commission: John C. Mason, Federal Power Commission, Washington 25, D. C.

Staff Counsel's Technical Aides and Consultants: Joseph J. A. Jessel, Almon D. Thomas, A. George Sunda, W. R. Farley. (All of Federal Power Commission Staff, Washington 25, D. C.)

Dated this twenty-second day of October, 1951.

/s/ WILLIAM J. COSTELLO,
Presiding Examiner. [2402]

[Title of Commission and Cause.]

RECOMMENDED DECISION

Upon an Application for License to Construct, Operate, and Maintain a Hydroelectric Project on the Deschutes River in the State of Oregon.

Appearances: For Applicant, Northwest Power Supply Company (and Portland General Electric Company): Clarence D. Phillips, Esq. For Interveners, State of Oregon, Oregon Fish Commission and Oregon Game Commission: Arthur G. Higgs, Esq., Assistant Attorney General, State of Oregon. For Intervener, Sellwood Chapter, Isaac Walton League of America, Inc., Rollin E. Bowles, Esq. For Tribal Council, Warm Springs Indian Reservation of Oregon: T. M. Brown, Esq. For the Staff of the Federal Power Commission: John C. Mason, Esq. [2404]

Procedural Record

Application filed May 23, 1949.

Notice of Application sent to the Secretary of the Interior, June 15, 1949.

Notice of Application sent to Corps of Engineers, June 15, 1949.

Notice of Application published in the Federal Register on June 23, 1949 (Vol. 14, No. 120, p. 3419).

Order for statutory advertising sent to area newspapers on June 17, 1949.

Notice of Application served on the Governor of the State of Oregon, Mayor of Madras, Oregon, and various State agencies of the State of Oregon on June 17, 1949.

Supplement to Application filed April 9, 1951.

Supplement to Application sent to the Secretary of the Interior on April 17, 1951.

Order setting public hearing on application issued on May 1, 1951.

Notice of Hearing published in Federal Register on May 5, 1951 (Vol. 16, No. 88, p. 4157).

Order postponing hearing and fixing new date therefor, issued on May 24, 1951.

Notice of Order postponing hearing published in the Federal Register on May 29, 1951 (Vol. 16, No. 104, p. 5025).

Public Hearing opened on June 11, 1951.

Telegraphic request for permission to intervene on behalf of the State of Oregon, Oregon Fish Commission and Oregon Game Commission filed on June 11, 1951 (Formal Petition filed on July 2, 1951).

Informal petition to intervene on behalf of Sellwood Chapter, Isaac Walton League of America, Inc., filed on June 11, 1951. (Formal petition filed on June 18, 1951).

Order permitting intervention by the State and State agencies (above named) and the Isaac Walton League issued on June 14, 1951. [2405]

Second Supplement to Application, filed June 15, 1951.

Public hearing concluded on June 20, 1951.

Order denying motion for omission of the intermediate decision procedure issued on July 5, 1951.

Motion to incorporate certain evidence in the record filed by Applicant on July 11, 1951.

Objections to above Motion on behalf of State and State agencies filed on July 16, 1951, and by Isaac Walton League on July 17, 1951.

Motion of Commission Staff Counsel to Incorporate Evidence in the Record filed on July 7, 1951.

Main Briefs of Applicant, and of the State of Oregon, filed on July 30, 1951.

Main Brief of Commission Staff Counsel filed on July 31, 1951.

Order reopening record to receive documents in evidence issued on August 15, 1951.

Reply Briefs of Applicant and of the State of Oregon, filed on August 20, 1951.

Reply Brief of Commission Staff Counsel filed on August 31, 1951.

Recommended Decision together with Certification of Record filed on October 22, 1951. [2406]

Costello, Presiding Examiner: An application for license under the Federal Power Act was filed on May 23, 1949, by Northwest Power Supply Company of Portland, Oregon, a corporation originally formed in 1949 under the sponsorship of three operating utility companies in the region for the principal purpose of obtaining a license for development of a hydroelectric site on the Deschutes River, in Oregon, known as the Pelton site. Subsequently, two of the sponsoring companies became interested in other power developments, leaving Portland General Electric Company of Portland, Oregon, as the only sponsoring company directly interested in the proposed development. A supplement to the application filed in June, 1951, states that Portland General Electric Company has become the applicant for license. This company will be hereinafter referred to as "Applicant".

Upon receipt, the application for license was processed by the Commission in the usual manner, with notice being given to the public and to agencies of the State of Oregon and the Federal Government according to the statutory requirements. Interest in the matter having been expressed by a number of private citizens and by the State of Oregon, a public hearing on the application was held in Portland, Oregon, commencing on June 11, 1951. Petitions for permission to intervene in this matter as formal parties were filed by the Attorney General of the State of Oregon, the Oregon Fish and Game Commissions (hereinafter referred to, collectively, as "the State"), and the Oregon Division

of the Isaac [2407] Walton League of America, Inc. These petitions were granted. During the course of the public hearing, oral and documentary evidence was presented, either in opposition to or in favor of the proposed project. In addition, full opportunity was given to members of the public at large to express themselves on the matter. A number of citizens attended the hearing and recorded their views.

The Proposed Project

The proposed project would consist of a concrete arch dam approximately 205 feet high, a reservoir with a normal pool at elevation 1,580 feet (which will be drawn down six feet in normal operation), three short penstocks, a side channel and tunnel spillway, an outdoor type powerhouse located near the dam containing three 52,000 horsepower turbines operating under a gross head of about 152 feet connected to three 36,000 kilowatt generators (a total capacity of 108,000 kilowatts), and related facilities, including a switching station and a 230 kv transmission line. In addition to these power facilities, the project would include a second, but smaller, dam located about three miles downstream from the power dam. Behind this smaller dam, which would perform no power functions, but would serve to iron out the fluctuating flows produced by the power production at the main dam and to eliminate hazards to sports fishermen below the dam, there would be a small reservoir with normal pool level at elevation 1,422. In addition to the works generally outlined above, there would be certain facilities installed at the project for the purpose

of holding anadromous fish, relieving them of their [2408] eggs ("stripping") so that the eggs can be transported by truck to a hatchery for artificial rearing of the fingerling fish which under natural conditions would have been produced in the waters above the dam.

The Deschutes River and Tributaries

The Deschutes River is a tributary of the Columbia River. The Columbia has been the subject of much study and many reports, the latest and largest being the "Review Report on Columbia River and Tributaries" prepared by the Corps of Engineers and bearing the date of October 1, 1948. This Review Report has been described thoroughly in a recommendation by this Examiner, which was issued on July 23, 1951, with respect to an application filed by the City of Tacoma for a project to be installed on the Cowlitz River in Washington, another tributary of the Columbia. The Review Report, submitted to Congress (eventually to be printed as H. Doc. 531, 81st Cong. 2d Sess.) is an almost indispensable source of data for anyone interested in the proper and orderly development of this great water resource in the Pacific Northwest. The Report, however, while providing data of value with respect to the Deschutes River, and properly a part of this record by reference as a public document, seems to have less significance here than it has in dealing with some of the other streams, for example the Cowlitz, a Washington tributary. The reasons for such difference will be apparent as this discussion proceeds.

A setting forth of some general data obtained from the Report (particularly Appendix K thereof), relative to the geography, topography, [2409] and stream flow, may be helpful in understanding the present application and the proposals made therein.

The Deschutes River rises near the summit of the Cascade Range and flows northward along the foot of the eastern slope to join the Columbia River at a point about 15 miles upstream from The Dalles, Oregon. The drainage basin, with an area of about 10,500 square miles, has a shape somewhat like an inverted Y, and Little Deschutes River forms the drainage pattern of the western arm. Twenty miles below its junction with Little Deschutes River, the main stream flows through Bend, the most important city in the basin.

About 55 miles north of Bend, two important tributaries, the Metolius and Crooked Rivers join the main stream, from the west and east, respectively, and at that point the flow from springs greatly augments the run-off which is depleted by irrigation diversions above Bend. Only two other important tributaries, Warm Springs River and White River at mile 84 and mile 47, respectively, enter the stream below Bend. Most of the basin is covered with timber, and this timbered area includes all of Deschutes National Forest, and portions of Mt. Hood and Ochoco National Forests. Topography of the basin is generally broken and rugged, except for the central Oregon plateau and the comparatively level bench lands in the mid-

valley section. Throughout the lower 130 miles, the river flows in a narrow canyon with an average fall of 17.6 feet to the mile. The agricultural lands consist largely of high table lands cut by deep canyons through which the rivers flow and small arable areas which border the streams. [2410] The soil is a coarse, disintegrated lava and the rocks of the entire area are volcanic and very porous. The river valley varies in width from 200 to 1,200 feet.

The geological formations, being porous in nature, act as underground reservoirs regulating run off from the basin. The Deschutes River has perhaps the most uniform flow of any river of comparable size in Columbia River Basin, and has a maximum discharge near Madras, which is in the vicinity of the proposed project, of about 13,300 cubic feet per second, the minimum at the same point being about 2,940 cubic feet per second. The mean annual run-off near Madras is 3,011,800 acre-feet, and the average flow is about 4,200 c.f.s.

Flow in the Deschutes is remarkably uniform, and because of the geological conditions in the basin, large floods are not regarded as probable in any part of the basin except on Crooked River, which enters the Deschutes from the east at mile 113, or about 10 miles above the proposed project. No floods causing major damage are known to have occurred.

Metolius and Warm Springs Rivers are the principal salmon supporting tributaries of Deschutes River. These streams support runs of spring chinook salmon and steelhead trout. Falls and dams above

the confluence of Metolius River block the upstream passage of anadromous fish. The Oregon Fish Commission has constructed and put into operation a salmon hatchery on Metolius River. The Deschutes River has numerous rainbow, cutthroat and German brown trout and is nationally known for its sport fishing. [2411]

There are presently three hydroelectric projects in the Deschutes Basin. Only one of these, a 1,100 kw plant at Bend, is on the Deschutes itself. However, it has been estimated by the Army Engineers that, in the total drop of 2,855 feet throughout the course of the Metolius River and Deschutes River below the mouth of the Metolius River, the estimated potential water power is sufficient to develop a total prime capability of about 400,000 kilowatts. There is a 2,600 kw plant at Cove, on Crooked River and a 2,250 kw plant in Tygh Valley on the White River. There are several steam-electric plants operated by lumber mills in the general vicinity of Bend. The three existing hydroelectric structures are properties of Pacific Power and Light Company.

Seasonal low flows of Deschutes River and its tributaries above Bend are completely appropriated and are used primarily for irrigation of lands lying east of the river.

The Issues

The hearing order issued May 1, 1951, did not define any particular issues to be resolved by means of the public hearing, therefore, the Applicant was under a burden to make a full public showing with

respect to every aspect of its application. On the majority of these aspects no question has ever arisen. The record contains a considerable amount of factual data, much of which was known to and had been thoroughly analyzed by the Commission's engineering staff prior to the hearing, and concerning which there is no controversy whatever. The discussion portion of this Recommended Decision will be confined to the few but important matters concerning which there is controversy. [2412]

The two substantial issues in this proceeding may be summarized as follows:

(1) Is the Commission authorized by the Federal Power Act to issue a license for this proposed hydroelectric power project to be located on the Deschutes River in Oregon?

(2) Are the plans of the Applicant sufficient to justify a judgment under Section 10(a) of the Federal Power Act that the proposed project is best adapted to a comprehensive plan for all the purposes set forth in the statue?

Jurisdiction

The jurisdictional issue here involved may be divided into two parts. The first involves an inquiry into the basis for assertion of Federal licensing jurisdiction over this proposed power project on the Deschutes River, which it appears, is not "navigable waters" of the United States as that phrase is defined in the Federal Power Act, nor does it appear that the proposed project on the non-navigable Deschutes will affect the interests of interstate or foreign commerce. The basis for Federal

license alleged in the application is the proposed occupancy of lands of the United States, and the occupancy of the Warm Springs Indian Reservation, by reason of the fact that the reservation extends to the thread of the Deschutes where it borders the reservation. The application for license was received in evidence without objection. Testimony by the Applicant's witnesses supports this part of the application. [2413]

The first part of the jurisdictional issue may be resolved simply. The Applicant has asserted that its proposed project will occupy certain lands of the United States and will affect the Warm Springs Indian Reservation. This assertion has been before the public since 1949 when the application for license was first filed and the regular notices were published in local newspapers and sent to all State agencies deemed to have an interest in the proceeding. Despite this, and despite the fact that the hearing record contains testimony supporting this assertion and not one shred of evidence to the contrary, the State of Oregon has persisted in an allegation that there is no basis for licensing by the Commission by reason of occupancy of any Federal lands.

The Staff of the Commission made a thorough check of the factual data contained in the application and supplements thereto, and presumably followed its customary practice of comparing the description of lands of the United States contained therein with the land records available to the public in the files of the Department of the Interior in

Washington, D. C., and in the land offices in the region. Had the Applicant erred in this matter of easily ascertainable fact, the matter surely would have been discovered and brought to light long prior to the public hearing.

It is held, therefore, on the basis of the evidence of record, that the proposed project will occupy lands of the United States and will affect the Warm Springs Indian Reservation. On the basis of these facts, it follows that under Section 23(b), the construction, operation, and maintenance of the proposed hydroelectric project without a license issued pursuant to Section 4(e) of the Federal Power Act would be unlawful. The [2414] contentions of the State, therefore, contained in its motion to dismiss the application and in its brief, which question the jurisdiction of the Commission to entertain this application and to issue an appropriate license if the application meets the other statutory requirements, should be rejected.

The second part of the jurisdictional question arises by reason of the assertion by the State that since the Applicant has been refused a permit to construct its proposed project by the agencies of the State, i.e., the Oregon Fish Commission has the Oregon Hydroelectric Commission,[1] the Applicant cannot present satisfactory evidence of its compliance with the laws of the State as required

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[1] The Hydroelectric Commission's refusal to approve the proposed project was based upon lack of a Fish Commission permit.

by Section 9(b) of the Act, and, therefore, the license application must be dismissed.

By its terms, Section 9(b) would seem to require clearance from State authorities before a project may be licensed, but under the interpretation of Section 9(b) by the Supreme Court of the United States as being only a means for enabling the Commission to secure insofar as it deems it material, such parts or all of the information that the respective States may have prescribed in state statutes as a basis for state action, and that Section 9(b) does not itself require compliance with any state laws, there would appear to be no persuasive basis for argument that the obtaining of a permit or permits from the State of Oregon or its [2415] agencies is a condition precedent or an administrative procedure which must be exhausted before securing a Federal license. See First Iowa Hydro-Electric Cooperative vs. Federal Power Commission, State of Iowa, Intervenor, 328 U.S. 152.

It is argued by the State in its briefs that the First Iowa interpretation is not applicable here because there were involved in the First Iowa case navigable waters of the United States, and that this case is only authority for the proposition that there can be no duality of authority where the subject matter is a navigable stream and the protection of interstate commerce is involved. It is true, of course, that navigable waters were involved in the First Iowa decision, and that the Court's principal discussion of the facts is related to that par-

ticular basis for exercise of Federal jurisdiction, rather than the public lands basis. But the principles enunciated by the Court, and the Court's reasoning would seem to apply with equal force to a case such as is involved here, where the basis of requirement of Federal license is the occupancy of lands of the United States. To distinguish between these equivalent statutory bases for requirement of license (on one hand derived from the constitutional power of the Federal government to regulate interstate commerce and on the other hand derived from the constitutional power of the Federal government as a proprietor, over the public lands) for the purposes of interpreting Section 9(b) of the Act as requiring State permits, would tend to produce the undesirable result so eloquently described by the Court in the First Iowa case, i.e., duality [2416] of control over the comprehensive development of national water resources, a result which the framers of The Federal Water Power Act of 1920 sought so earnestly to avoid, when they reposed in a single agency, all of the authority with respect to the licensing of water power development on the public lands and reservations of the United States theretofore exercised by the Secretary of the Interior and the Secretary of Agriculture.

It is concluded, therefore, that the inability of the Applicant to obtain permits from the State of Oregon to proceed with the proposed project, does not per se inhibit the authority of the Commission to issue an appropriate license authorizing the con-

struction, operation, and maintenance of a hydroelectric power project which must occupy lands of the United States and affect the Warm Springs Indian reservation.

Statutory Requirements for License

An application for license under the Act must meet certain requirements before a license may be issued. Chief among these preliminary requirements are those found in Section 10(a) of the Act which states that a project (including the maps, plans, and specifications) shall be such as in the judgment of the Commission will be best adapted to a comprehensive plan for improving a waterway or waterways for the use or benefit of interstate or foreign commerce, for the improvement and utilization of water power development and for other beneficial public uses, including recreational purposes. The statute further states that the Commission may require such modification of the project as may be necessary [2417] to achieve the ends sought in the statute.

As has been indicated in the discussion relative to jurisdiction the Deschutes is not regarded as "navigable waters of the United States" in the sense that phrase is used in the statute, and the record shows that the Corps of Engineers has no interest in the Deschutes as it would have if this stream were navigable waters of the United States or the proposed project would affect navigable capacity of navigable waters. There is no aspect of flood control involved. Thus, that part of the statute which requires that the project be best adapted to a

comprehensive plan for improving or developing a waterway "for the use or benefit of interstate or foreign commerce", has no applicability to this case.

It remains, therefore, only necessary to examine the plans of the Applicant with respect to the power features of the project, both from an engineering and economic standpoint, and also to determine whether the project, as contemplated, may be judged best adapted to "other beneficial public uses, including recreational purposes."

The need in the Northwest for the power from this proposed project (or power from any other source) is so great as almost to be the subject of official notice. Consequently, there is no need to discuss this matter at length. The element of speculation, which frequently is involved when there is a large and long-term capital investment planned, is almost non-existent. There will be a market for low cost power in the Northwest for many years. The Staff's detailed studies and expert testimony on this subject leave little room for doubt. A thorough study of [2418] the engineering aspects of the application has been made by the Applicant's engineers and by the engineers of the Commission's staff—i.e., the matters of construction cost, safety and adequacy, full utilization of the water power at the site, and while the record contains an abundance of evidence concerning them, these matters also need not be discussed since there has been no controversy respecting them.

The Applicant's proposal, however, to install a high dam on the Deschutes has met with vigorous

opposition by the fisheries interests of the West Coast, the State of Oregon, through its Fish and Game Commissions, and the sportsmen's organizations, represented in this hearing by the Oregon Division of the Isaac Walton League of America. The opposition by these groups appears to be based upon their conviction that the Deschutes River now supports a considerable population of anadromous salmon and steelhead trout and that it is capable of supporting and must be used in the future to support a much larger population of these fish. These groups believe that the Applicant's project will decimate the present populations of anadromous fish by depriving them of access to the natural spawning areas in headwaters above the damsite, particularly in the Metolius River, a spring-fed tributary.

It should be noted, however, that the Applicant has not sought a license for its proposed project without consideration for the anadromous fish now using the Deschutes, but that its plans include a proposal to install a re-regulating dam below its main dam for the purpose of eliminating fluctuations in downstream water levels due to the power [2419] operations of the project, and that it has undertaken to establish an egg-taking station near the damsite with holding ponds, an adequate water supply, caretaker's cottage at the regulating dam, fish traps at the re-regulating dam with ladders leading from the traps to the holding ponds or an elevator to raise the fish to the ponds, expansion of an existing state fish hatchery on the Metolius

River upstream from the project, and trucks for the transportation of eggs to the hatchery and for transportation of fingerlings from the hatchery to points below the dam. In addition, the Applicant has offered to make an annual payment to partially defray the cost of the operation of the expanded Metolius hatchery.

These offers by the Applicant might give the impression that there is involved in this matter a present salmon and steelhead population of rather large proportions, but for reasons not explained on this record, the Deschutes River is not now, nor has it been recently, a particularly plentiful producer of salmon and steelhead.[2] There has been some con-

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[2] Adjectives, obviously, do not provide much assistance, and comparisons must be made. The Fish Commission estimates that runs of spring chinook salmon passing the Pelton site enroute upstream are in the "general magnitude" of 2000 to 2500 annually, and that approximately 5000 summer steelhead move past the site. Examination of the testimony on this subject will reveal that these obviously rounded figures were derived circuitously. No counting weir was installed and nothing approaching a true count was made. The Fish Commission apparently has a multitude of streams to survey, a limited number of employees, and the Deschutes, traversing extremely rugged country is a difficult stream to investigate. But even accepting at full value these generous estimates by the Fish Commission, this agency estimates the annual value of the whole Deschutes salmon and steelhead fishery as being $177,375, and part of this figure would relate to the portion of the stream below the Pelton site, unaffected by the proposed dam. The State of Washington's evaluation of the Cowlitz River fishery which

jecturing on [2420] this subject by both laymen and professional biologists with a view to explaining why salmon of more than one species and in great numbers have declined to utilize this heretofore unobstructed avenue for reproduction. Most of the reasons appear to be quite speculative, although cumulatively they may provide the answer. It is believed that upstream irrigation diversions have discouraged the use of large areas in the headwaters[3] and perhaps the remaining gravel beds downstream are sparse or that the gravel in these beds may not be plentiful, of the wrong grade, or difficult to use by salmon for nest building. There is some belief that the native food supply for the fingerlings may be so limited that it will not support substantially greater numbers of salmon offspring. And there is some belief that the resident non-migrant adult trout which inhabit the stream

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was used as a rough basis in disposing of the application by the City of Tacoma, indicated that the Cowlitz produced fish annually with a value in the neighborhood of $2,000,000, approximately half of that being produced by the stream above the uppermost proposed dam.

[3] See Appendix P to Review Report on Columbia River and Tributaries, par. 127, pp. 60-61. "The chinook run retains only a small remnant of its former size, * * *. The extensive withdrawal of water for expanding irrigation requirements has greatly reduced the potential value of the watershed for anadromous fish, * * *." (Par. 128) "Irrigation developments in the Deschutes Valley are presenting some serious and difficult problems to the maintenance of the sport fishing. * * *"

may devour an inordinate amount of the salmon fingerling or may, by their numbers, deplete the native food supply which would otherwise sustain more salmon fingerlings. Trout, it appears, also are carriers of diseases which do not favor salmon. Be that as it may, the record shows rather clearly that the Deschutes certainly is not now a top-ranking salmon stream, and the likelihood of its becoming so in the foreseeable future is rather remote. It was estimated that the Deschutes now contributes less than 5% of the Columbia River fishery. [2421]

Of course, the fact that the Deschutes is rather sparsely populated by anadromous fishes would not relieve the Applicant of the duty of doing what it can do reasonably to preserve this fishery resource (whatever its relative size may be) and cooperating with conservation agencies in improving the stream for fish because, as has been pointed out in a previous recommendation which concerned the possible destruction of the anadromous fish in a Columbia tributary which has been ranked as the number one fish producing tributary in the watershed, the monetary values of power usually exceed by many times the monetary commercial and recreational values of fish in a stream even when the fish are plentiful and to base a decision solely on the relative dollar values of the fish and the power would be to conclude invariably that fish conservation requirements are a secondary consideration in the issuance of a license for a power purject. A public hearing in such a case would be an empty gesture.

The record shows that the refusal of the Oregon Fish Commission to grant a permit for this dam is not based upon any law prohibiting high dams which interrupt fish migration, as is the case in the State of Washington, where all tributaries below the McNary Dam on the Columbia have been set aside as sanctuaries. It appears that not only is there no state law, as such, which would prohibit the proposed project, but that the Oregon law specifically provides for the issuance of a permit by the Fish Commission, which is empowered in its discretion, to grant such a permit on the condition that the applicant convey to the state a site and erect thereon a hatchery and a residence in conformity with plans and specifications [2422] and satisfactory to said Fish Commission. Further, the law provides that such power developer shall enter into an agreement with the Commission secured by bond, to furnish all light and water to operate said hatchery at its own expense.

So it is clear that the Fish Commission could lawfully issue a permit for this dam if it chose to do so. It also is clear that the Applicant desires to take all steps short of rendering the project economically infeasible to accede to the wishes of the Fish Commission. But the Fish Commission bases its refusal to issue a permit on the ground that the proposals of the Applicant are impractical and inadequate. The Fish Commission believes that it will not be possible to hold successfully the adult spring chinook salmon in holding facilities below the dam until they become sexually mature, because the water to be used for holding will not be cool enough

to induce sexual development of the captives. The Applicant has employed engineers and one experienced geologist to explore this matter of water temperatures, and these experts have concluded, after tests, that the water impounded by the dam (from the depths of which the water will be taken for the holding facilities) will be cool enough for salmon holding purposes.[4] [2423]

The fact that the Applicant does not propose to build a separate hatchery at or near the dam but proposes to finance the enlargment of the existing Metolius Hatchery, contribute to its upkeep, and finance the transportation facilities required to move eggs to the hatchery and fingerlings to the point of release is not the point of disagreement. And it appears that Applicant's proposals follow, in large part, the recommendations made on the matter in 1949 by the Director of Research, the chief biologist of the Fish Commission. The only essential difference between the Applicant's proposal and this recommendation of the Director of Research is in the amount of the contribution which should be made by the Applicant to the annual operation and maintenance of the enlarged Metolius Hatchery. The Fish Commission's Di-

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[4]Cool water is necessary for hatchery operation. In Appendix P (Par. 76, p. 41) to Review Report on Columbia River and Tributaries, there is proposed the installation of a hatchery on the lower Deschutes to accommodate 50 million eggs, "where reasonably good water conditions could be obtained". Such hatchery would compensate for expected loss of fish runs through the construction of The Dalles and John Day Dams.

rector of Research was a witness at the hearing in this matter. When asked how it was that he could furnish the framework of a plan on hatchery salvage operations in connection with a project to which he—and his Commission—were unalterably opposed—his answer was to the effect that the Applicant is composed of a group of citizens which is entitled to the advice of the State agency on technical problems just as any other citizens would be—even though it would be against the policy of the Commission to authorize the actual use of such a plan.

The Fish Commission held the application for a permit for this proposed dam for nearly a year. Then on September 1, 1950, the Fish Commission furnished the Applicant with a copy of an excerpt of its minutes of August 22, 1950, which recorded the final action by the Commission [2424] on this application. The basis for denial of the application at that time were (1) that the authorization of this dam by the Fish Commission would cause certain Federal funds to be cut off which had been earmarked for use in expanding the Metolius Hatchery (2) that there is no place where a hatchery could be successfully operated below the Pelton dam, (3) that the peaking operations of the power plant would result in fluctuations of water state which would be destructive to fish below the dam. Subsequently, the Applicant amended its plans to provide for a re-regulating dam below the principal dam to remove what appeared to be the greatest objection by the Fish Commission on this point.

This addition to the project would involve a large capital outlay and no power benefits. In April, 1951, the Applicant notified the Fish Commission of this change in its plans and asked for reconsideration of its application. Further formal action was taken by the Fish Commission on May 15, 1951, when again it denied the application for permit, emphasizing in this action that the granting of a permit would not be consistent with the principles and aims of the Lower Columbia Fisheries Plan. On June 13, 1951, the Chairman of the Fish Commission presented a statement for this record on the position of the Fish Commission. The Chairman's statement reviewed the action which had been taken by the Fish Commission—and seemed to emphasize particularly, that the reason for denial of the permit was because the Federal government would not release funds which had been earmarked for improvement of the Metolius Hatchery so long as there was an application for a permit for a dam pending which would block anadromous [2425] fish rather than the biological infeasibility of the Applicant's proposed salvage program.

Most of the statement of the Chairman of the Fish Commission related to the dire effects which would be caused by Applicant's dam on the Lower Columbia River Fisheries Program, and was to the effect that the granting of a permit to construct a dam on the Deschutes by the Fish Commission would be a breach of an agreement among the States of Washington, Oregon and Idaho and the United States of America, signed in 1948. This agreement

among the States and the Federal government was designed to make the States involved partners in a joint effort to improve and rehabilitate streams for anadromous fish to offset damages caused by construction of dams and similar facilities by agencies of the Federal government.

It should be noted that the reasons advanced in the Fish Commission's action of May 15, 1951, and by the Chairman at the June 1951 hearing in this matter were similar to but not the same as the reasons for first denial of the permit as contained in the Fish Commission's minutes of August 22, 1950.

Review of the actions of the Fish Commission on this matter, together with a review of the efforts of the Applicant to comply with the law of the State (which seemingly provides a recipe for the obtaining of a permit by those who desire to construct dams in the streams of the state to a height that would make a fish ladder or fishway impracticable) and the advice of the Fish Commission which it obtained so that it could [2426] prepare proper plans, would cause one to suspect that as the Applicant suggests means to surmount each obstacle and solve each technical problem, new obstacles and new technical problems are placed in its pathway. This is not to say that the actions of the Fish Commission have been improperly motivated or that there is any basis for claiming that these actions have been arbitrary or capricious. This agency is charged with the duty of protecting and conserving this natural resource, this important asset, and is doing all that it can to carry out its duties in ac-

cordance with the law. On the other hand the record shows that the Legislature of the State of Oregon has been prevailed upon to prohibit power development of the Deschutes by law and has declined to do so. It could not be successfully argued that the Fish Commission has the power to accomplish administratively what the legislature of the State has refused to do by legislation. Be that as it may, the picture so far as this Applicant is concerned, is one of indirection and frustration, in its efforts to comply with State law, and a kind of dilemma which prompted the Supreme Court, in the First Iowa case to expound vigorously on the impracticality of a dual control of national water resources and to emphasize that it was the intention of Congress to secure a comprehensive development of national resources by providing for a federal plan of regulation which leaves no room or need for conflicting state controls.

If it were established on this record that the Deschutes is capable of maintaining a much greater anadromous fish population than it maintains today, the salvage operations proposed by the Applicant might [2427] be inadequate to create and maintain a heavy salmon run. For it seems to be fairly well accepted among those versed in this subject that hatcheries, alone, cannot maintain a large salmon run. There are good biological reasons for limiting the size of a hatchery operation. There are even more pressing fiscal reasons why the capital costs of hatcheries and the operation and maintenance costs must be kept low since the direct benefits of

hatcheries, in the case of anadromous fish at least, are received by the fishing and canning industry, and only incidental benefits are received by the taxpayer who supports the state-owned hatcheries or the power purchaser who buys electric power from a power producer which is under obligation to pay a sizeable annual payment to operate and maintain the hatchery. It seems clear that the cost of maintaining a large run of anadromous fish by hatchery operations alone could become so expensive as to be prohibitive. Medium or small runs apparently can and have been successfully salvaged by the use of hatcheries. Were this not so, the Oregon state law would not provide for permits to be issued by the Fish Commission with hatcheries to be financed by the builders of impassable dams.

Aside from the contention by the State that the salmon holding and egg stripping facilities near the dam proposed by the Applicant would not serve their intended purpose because of unsatisfactory water supply, and these facilities could not be used to maintain a fish population in the Deschutes of the proportions envisioned (some five times the present population), the chief difference contested between the Applicant and the Fish Commission is in the amount of annual contribution which should be [2428] made by the power company to the operation and maintenance of an enlarged Metolius Hatchery. The Applicant has offered to contribute up to $100,000 annually for operation and maintenance of the hatchery. The Fish Commission's estimate of the total cost of the operation of the en-

larged Metolius Hatchery appears to range between three to five times this offered figure,[5] and it appears that it is the Fish Commission's belief that the power company should not merely contribute to the annual maintenance cost of the hatchery but that it should bear the whole cost.

The Staff of the Commission points out in its brief that the project would be economically feasible if the Applicant were to make the capital investment and the annual payments it has proposed. The Staff has gone further and has shown that if the annual operation and maintenance cost of the fish propagation facilities should be $255,000 (an average obtained by balancing an extreme of $300,000 against a lower figure of $210,000) the annual values of the power project would still exceed the annual

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[5] The Applicant argues in its brief that the whole anadromous hatchery program amounts to a State subsidy to the fishing industry and that its offer of up to $100,000 annually for operation of a hatchery would constitute a generous donation. There is no formula for arriving at the amount of this offer. The Fish Commission's estimate of $459,000 annually is based upon a sort of formula. The Commission would expect to trap some 2500 spring chinook which would yield about 6,250,000 eggs and 5000 summer steelhead which would yield some 7,500,000 eggs. To process this harvest of eggs—to produce some 10,000,000 fingerling fish—or 340,000 pounds of fingerling—the Fish Commission estimates that the operation would entail an annual expenditure of approximately $1.35 per pound of fingerling reared, or $459,000 annually. Maintenance of the egg-taking station would cost approximately $40,000 in addition.

costs and losses by some $471,000, and possibly even more. [2429]

The question as to how much the Applicant, as a licensee, should pay annually for the operation and maintenance of the expanded Metolius Hatchery is one which cannot be answered satisfactorily from the facts in this record. The gap in the record which makes the final answer impossible to derive specifically is caused by the lack of information as to how many fish actually would be involved in the salvage operation. The Staff has contended that the $500,000 annual cost of the Metolius Hatchery, as estimated by the State should be almost halved. The Staff does not accept the estimates by the State for a number of reasons, the principal one being, perhaps, that the costs estimated for this one hatchery are far in excess of the total annual cost of all the hatcheries in Oregon, operated by the State.

But it is necessary to analyze this matter of hatchery cost, even if only inconclusive results are obtained, in order to determine whether the hatchery costs will be so great as to endanger the whole project as an economical undertaking. Assuming that the artificial propagation operation brought about by the installation of the Pelton Dam will involve an annual production by the Metolius Hatchery of 340,000 pounds of fingerlings ready for release below the Pelton Dam, the cost of such production apparently must be estimated along these lines:

It requires about five pounds of fish food to produce one pound of fingerling.

340,000 pounds x 5 = 1,700,000 pounds of fish food required each year. [2430]

The cost of fish food varies between .07 and .12 cents per pound.

Assuming that the fish food will cost between .09 and .10 per pound, and between 4 and 5 lbs. are needed to produce one pound of fish, each pound of fish would cost about 47.8 cents. This is the Staff's estimate.

Food to rear the 340,000 lb. of fingerling would cost about $163,000, annually.

The total cost of hatchery operation, which includes salaries, wages, and many other things in addition to the food needed, apparently generally amounts to between two and three times the cost of the food alone.

163,000x3 = $489,000 or total cost (high) of operation of the Metolius Hatchery.

Assuming that total costs are only double the cost of the food.

163,000x2 = $326,000 or the total cost (low) of operation of the Metolius Hatchery.

The Staff's analysis is very similar to the above analysis except that it has estimated that the operation and maintenance figure other than for the food is much too high as estimated by the State. On a food cost of $163,000, the Staff contends that the total cost will not exceed $300,000. In its Brief it has settled upon the figure of $255,000 [2431] which

was derived by averaging the high cost with a low cost computed by using a lower food cost of .07 rather than the .09 or .10.

There is some basis for believing that the total cost of hatchery operation will be between two and three times the cost of the food needed. In three Federal hatcheries operated during 1949, the total cost of production ranged between a high of 3½ times the cost of the food to a low of about 2-1/3 times the cost of the food. This Federal hatchery cost data is in this record. There is some difficulty in use of this Federal hatchery cost data because it relates to much smaller hatcheries than would be the Metolius Hatchery, and the cost figures are not broken down into their parts so that they can be analyzed completely.

It is not clear that the Staff's estimate of annual cost makes any provision for a separate allocation for the separate operation of the egg taking station. The State has estimated that this unit would require at least $40,000 for operation and maintenance over and above the hatchery operation cost.

In view of the foregoing and in order to err on the side of liberality insofar as the fish conservation program is concerned, the figure used by the Staff in its brief for testing economic feasibility has been raised from $255,000 to $325,000, and an additional allowance of $40,000 for the egg taking station has brought the figure to $375,000. This figure, which includes the egg taking station, is still less than three times the cost of the food required. [2432]

Using this figure of $375,000 instead of the $255,-

000 used by the Staff, it would appear that if the Applicant were required to pay such figure, the values of the project would still exceed the costs by some $350,000.

It must be emphasized, however, that this excursion into the unknown is not made for the purpose of crystallizing the amount which should be paid by the Applicant, but only to provide a margin of safety in determining the economic feasibility of the project under adverse cost conditions. It is very apparent that it would not be practicable to fix a definite figure for the annual payment at this time, since the number of fish to be affected by the dam is absolutely unknown. However, even if the State's estimate of the number of fish affected in this salvage operation is wrong by 50%, the offer of the Applicant to pay only $100,000 annually is certainly too low. On the other hand, the State has estimated the entire value of the Deschutes salmon and steelhead fishery as having an annual value of $177,375 and itself spent less than $200,000 in the fiscal year ending June 30, 1950, on all of its hatcheries.

It may well be that when the State finds that installation of the project is inevitable, it may be able to enter negotiations with the Applicant as a licensee, which will produce an arrangement which will be satisfactory to all concerned. It may be that it will be necessary for the State to operate the expanded hatchery for several years to ascertain the cost of operation and maintenance. At any rate, the parties should be permitted to negotiate with each other with a view to settling this matter by

themselves before the Commission undertakes to [2433] fix an annual payment figure as a part of the license. The recommended order in this matter will be phrased in a manner which will leave this open to negotiation and the right reserved by the Commission to fix the amount of the payment if the parties fail to agree.

In summary then, the record appears to support findings with respect to the effect of the proposed dam on the anadromous fish population of the Deschutes and with respect to the Applicant's proposals with respect to fishery conservation: that the Deschutes now support an appreciable population of anadromous salmon and steelhead trout; that the ability of conservation agencies to bring about a marked increase in the anadromous fish population of the Deschutes has not been shown; that the existing population of anadromous fishes may be maintained and even increased to a certain degree by the holding of the fish at the Pelton Dam and the artificial propagation of those fish by the transportation of the eggs to the existing State hatchery on the Metolius River, the hatching, and release of the fingerlings at points below the Pelton project; that the Applicant should pay the entire capital cost of the installation and the annual operation and maintenance of the egg-taking station at the dam, as well as the capital cost of the transportation equipment and annual cost of operation and maintenance of the transportation equipment required to transport eggs to the Metolius Hatchery; that the Applicant should pay the capital cost of enlarging

the Metolius Hatchery and thereafter should pay an annual amount for the operation and maintenance of that portion of the hatchery which can be attributed to [2434] salvage operations brought about by the Pelton project; that because of the wide variance between the offer of the Applicant and the amount estimated by the State for such annual hatchery payment, these parties should be permitted to negotiate with respect to the matter with a view to arriving at a figure which would be reasonably satisfactory to both, but which would not adversely affect the economic feasibility of the project.

The Warm Springs Indian Reservation

No opposition to the proposed project was entered by the Warm Springs Indians, nor was the project endorsed by this group, whose lands would be affected by the project. The Applicant has recognized from the first that by law the Indians must be compensated for the use of their lands, but was not able at the time of the hearing on this matter, to arrange for a determination of the annual charge. It does not appear from the record that there will be any real difficulty experienced in arriving at a figure which will be satisfactory to the Indians. There is proposed also, in addition to a money payment, the furnishing of electric power to the reservation, which possibly will be of more value to the Indians than the equivalent cash. For purposes of computing the difference between power values and costs, the Staff has proposed the sum of $50,000 for the annual payment for use of Indian lands. Because there is a comfortable margin between power values

and project costs, this $50,000 figure is not the maximum payment possible. It is not conceivable that the Indians who stand to gain much by this project would not be able to agree to an equitable annual figure. [2435]

Sport and Recreational Fishing

The proposed project does not appear to have any substantially adverse effect upon the sports fishing in the area, except in the dozen miles occupied by the dams and reservoirs, and may in fact improve the recreational value of the Deschutes River Basin. The anadromous salmon, of course, are not sports fish. The migrating adults have stopped feeding long before they enter the Deschutes system and do not attract sportsmen because of their poor quality. Steelhead trout are anadromous, but appear to adopt the role of the rainbow trout without difficulty. Any steelhead spawned naturally above the Pelton Dam would be prevented from moving to the sea and would be land-locked. But apparently some would be available for sports fishing as rainbows. Steelhead spawned below the dam might migrate to sea and might not, but there would be nothing to prevent migration if they chose to go to the sea.

In addition to the salmon in the Deschutes, with no sport or recreational value of consequence, and the steelhead, just discussed, there are, in the Deschutes, non-migrant or resident trout which offer great attraction to the sports fisherman. But the Deschutes now is confined for the most part within rugged canyon walls which offer a considerable

obstacle to the casual sportsman. Creation of the Pelton reservoir, at an elevation more accessible from the highway, will undoubtedly make a part of the Deschutes, especially at or near the new reservoir, attractive to that element of the sports fishing fraternity which prefers to spend a fishing day in actual fishing rather than in climbing and [2436] descending. And the reservoir will offer some attraction as a lake for boating and possibly limited swimming, especially if the fears with respect to raising the temperature of the water, expressed by some witnesses at the hearing, are realized.

The lake will offer recreation of a different sort, perhaps, than the unobstructed river offers now in this seven- or eight-mile section. Lake species of sports fish will be available rather than the trout which inhabit the faster moving water. But the lake will become a recreational fishing resource nonetheless.

The Staff advocates the Game Commission's estimate of a present recreational value of $2,000 per mile of river as proper for that portion of the Deschutes to be occupied by the reservoir, the power dam and the re-regulating dam—some twelve miles—and has included this figure of $24,000 in a table of combined annual costs and losses attributable to the Pelton project. The estimate is characterized as rough, and perhaps that is the best that can be said for it. Offsetting this estimate of loss of recreational value by inundation is the Staff's contention that the reservoir will provide added recreational value to the extent of $15,000. This figure is in the Staff's

brief, but it is not supported by evidence of any kind, nor is there the slightest indication of the manner in which is was derived. It is possibly the product of desperation stemming from the conviction that all values must be reduced to monetary terms in order to be meaningful. [2437]

So long as the sports fishing of the Deschutes is not to be materially adversely affected by the installation of this project and there will be some benefits contributed by reason of the creation of a reservoir, it would not appear to be necessary to crystallize these prospective recreational benefits and losses. The Examiner's findings on this subject will be phrased to show that there will be some adverse effects upon present sports fishing by reason of the proposed dam and reservoir, and that there will be some recreational benefits conferred by reason of the creation of a reservoir. The present record would not justify more definiteness on this subject.

The Review Report on Columbia and Its Tributaries

The latest over-all plan of the Corps of Engineers for development of the water resources of the Columbia River and its tributaries does not include a discussion of the Pelton site nor of any project which would affect, or be affected by, the proposed Pelton project. There is a discussion in the Report (Appendix K) of nine possible future power projects on the Deschutes, the uppermost at river mile 63 and the lowermost at river mile 2.5. The proposed Pelton site is to be located at river mile 103—

nearly forty miles above the highest project discussed by the Army Engineers, and would be approximately 170 feet high, as compared to 145 feet proposed by the Army for the uppermost of the series of nine dams. Several pages of Appendix "K" of the Review Report are devoted to a discussion of the Deschutes River and its tributaries. The burden of the Report with respect to the Deschutes so far as immediate development is concerned, may be seen from these statements:

(Appendix K)

409. In view of the need for preservation of runs of anadromous fish in Columbia River, development of Deschutes River and tributaries in the near future should be limited, in general, to that proposed by the Fish and Wildlife Service under the lower tributaries fishery plan as outlined in this appendix and further explained in appendix P. * * * Possible future storage and power projects discussed herein which would interfere with the lower tributaries fishery plan should be considered for construction only at such time as needs for irrigation or power are determined to outweigh the need for anadromous fish resources which might be depleted thereby. * * *

The Lower Columbia Fisheries Plan, to which reference is made in the foregoing quotation, has been discussed in an earlier Recommended Decision by this Examiner which related to an application for license for two high dams on the Cowlitz River in Washington. This decision was issued on July 23, 1951 (In the Matter of City of Tacoma, Project No.

2016), and is presently before the Commission for its consideration, exceptions to various part of the decision and the findings therein having been filed by all parties and the Staff. In view of the extensive treatment in that report of the Fisheries Plan and the adoption of the fisheries plan by the Corps of Engineers, no useful purpose would be served by a lengthy discussion of these matters herein.

While comparisons may be odious, particularly in view of the unjelled status of the Tacoma application, there are important differences between the proposal in the Cowlitz matter and the proposal here. In the Cowlitz matter, the Applicant relied chiefly upon the expected success of [2439] high fish ladders designed to pass adult fish over two high dams in series, and other unique, untried and, therefore, experimental facilities designed to pass infant fish thru the two dams on their seaward journey. There were indications that the Applicant in the Cowlitz case might contribute funds to hatchery operations to supplement these untried fish passage facilities in case they failed to operate as well in practice as they appear to operate in theory, but there was in that case no clearly delineated plan to use hatcheries to save the extensive Cowlitz runs in the event the novel fish passage facilities were found to be ineffective. Most important of all, in the Cowlitz matter, the record showed rather clearly that the Cowlitz presently supports very large salmon and steelhead runs, which are of such size that they probably could not be entirely salvaged by the use of hatcheries, even if the Applicant in

that case had chosen to approach the problem from that standpoint. It was the Examiner's conclusion in that case, that in all the circumstances the risks involved in the trial of untried fish passage devices were too great to justify the issuance of a license for that project at the present time.

In this Pelton proposal, there are no untried fish passage facilities involved. There are no ladders planned for passage of adult fish, although perhaps laddering a dam about 170 feet from tailwater to normal pool might be feasible had there been a showing that the fish population in the Deschutes could not be maintained by the use of hatcheries. The Applicant contends that the anadromous fish population of the Deschutes may be saved by the use of hatcheries alone, and the record [2440] appears to support that contention. Hatcheries have been used for many years to supplement natural propagation of anadromous fish, and while there is a great deal to be learned in this field (especially with respect to propagation of spring chinook salmon), there is enough knowledge so that the success or failure of a hatchery operation may be predicted with some degree of accuracy.

The main difference, then, between the Cowlitz situation and the Pelton situation lies in the numbers of fish to be saved. The Cowlitz presently supports large anadromous fish runs of several species of salmon and steelhead. The Pelton anadromous fish population, at least so far as this record is concerned, is much smaller, is limited to one species of salmon and steelhead trout and is capable of being

salvaged in the manner proposed by the Applicant. To this extent, then, the project would not be inconsistent with the Lower Columbia River Fisheries program of the U. S. Fish and Wildlife Service.

The aspect of the project urged to be in conflict with the Lower Columbia Fisheries program is that, while the Deschutes supports a rather small population of anadromous fish now, the proponents of the fisheries plan have in mind increasing that population in the future are the main stem Columbia dams are built, to compensate for losses which will be caused by the erection of impassable dams in the Columbia Basin.

The material increase of the salmon population of a stream may be accomplished in a number of ways. It is possible to ladder small impassable falls, to remove fallen trees and rock slides, to eliminate [2441] toxicity from toxic waters, and thus make unused but suitable spawning areas again accessible to anadromous fish. But the factors determining whether or not anadromous fish will use a stream in greater numbers appear to include (among others) availability and quantity of natural food, and availability of properly situated gravel bars and beds. The number of resident predators and non-migrant fish consuming the available food supply also bears on the matter. There is nothing in this record which would indicate that it is economically feasible or even possible to enrich or augment with notable success the food supply in natural streams, or that it is possible to create spawning areas where none existed before. Merely

releasing large numbers of hatchery-bred fingerling into a stream apparently has little lasting effect upon the permanent population. Unless there is ample natural nutrition for the released fingerling and ample spawning beds for them to use for reproduction when they return from the ocean as adults in later years, the fish population will rather quickly adjust in number to the natural environmental limitations. Particularly is this so in the case of the spring chinook salmon, which must apparently remain in fresh water and derive its nourishment therefrom for about a year before it begins its seaward journey.

It does not appear, therefore, that there is great likelihood of materially increasing by artificial means the anadromous fish population of this hitherto unobstructed stream unless it could be determined that the ratios of fish to food and fish to spawning areas are considerably out of natural balance. The information in this record will not permit [2442] definitive findings on these aspects. Efforts to establish fall chinook and blueback runs in the Deschutes have been unsuccessful. It would appear that while all reasonable and feasible measures should be taken to protect or to salvage existing populations of anadromous fish when other uses of the water threaten the continued existence of the present population, uses of the waters for other than fish propagation should not be hindered or delayed, particularly in a period of great national need, on the mere possibility that the stream might support much greater fish populations or that means

will be found eventually to assist Nature to that end.

For the reasons stated, it does not appear that construction of the Pelton Project with provision for a well-financed and well-managed hatchery program, which will save and maintain the present anadromous fish population of the Deschutes River, will be inconsistent with the principles and aims of the Lower Columbia River Fisheries Plan.

Licensing of this project will be contrary to the recommendation of the Secretary of the Interior, which is an important and statutory part of this record. It is to be observed, however, that while one official of the U. S. Fish and Wildlife Service testified as a witness at this hearing, his testimony was of an entirely different nature than the testimony presented by the officials of the Service who testified during the Cowlitz hearing. Fish and Wildlife Service officials testified at the Cowlitz hearing and presented their views with respect to the present and potential importance of the Cowlitz as a fish-producing stream [2443] and their views as to the impracticability of attempting to save the existing runs by use of the facilities proposed by the City of Tacoma. A similar opportunity to testify was offered in this proceeding, but there was no testimony by the Fish and Wildlife Service presented at this hearing on the technical and biological features and the feasibility of the proposed salvage operation nor on the subject of the potential value of the Deschutes for production of salmon.

Apparently the aims of the Lower Columbia

Fishery Program do not include any present plan to increase the food supply of streams so that they will support more fish than they do at the present time. The cost of such a program would seem prohibitive. Yet it would seem that the only way the Deschutes could be made five times more productive than it is in a state of nature would be to provide more food than the stream produces by itself.

The Lower Columbia Fishery Program of the U. S. Fish and Wildlife Service has received the support of all Federal agencies concerned with the development of the Columbia River and its tributaries. It appears that adherence to the principles of this plan is absolutely essential if the anadromous fishery resources of the Northwest are to be saved for future generations. The present power [2444] shortage in the Northwest which is due in large part to a necessarily accelerated National Defense program, has subjected this 1948 fishery plan to tremendous pressure. The long-range water resources development program for the Columbia Basin worked out by the Army Engineers and the Bureau of Reclamation, which in normal times might involve decades to complete in its entirety, is being accelerated with a view to obtaining the greatest number of kilowatts in the shortest period of time. The long-range plans of the U. S. Fish and Wildlife Service and of the States of the Northwest must be subjected to intensive review to determine whether or not some of the larger streams they have listed as desirable for fish refuges in the Lower Columbia watershed may be used for needed power

development without unconscionable damage to and permanent depletion of the regional fishery resources. The record in this particular matter requires the conclusion that that rather small part of the fishery resource of the region attributable to the Deschutes River may be salvaged satisfactorily by the use of hatchery propagation and that this stream is not admirably suited to increased production. As the accelerated program of hydroelectric development of the Columbia and its tributaries proceeds, it may be that other dams may be installed with the aid of conservation experts in other streams [2445] in the sanctuary list, with no materially adverse effect upon the fishery resources of the region. But, each stream must be separately studied, and each proposal to develop additional power which will effect fish must be determined upon its own facts, with the overall view of protecting the public interest now and for the future.

Before setting forth the findings of fact and conclusions which comprise the essence of this recommendation, a brief statement should be made with respect to those findings recommended by the parties and by the Staff which will explain the basis for acceptance of or refusal to accept particular findings or portions of findings in the form proposed. The State of Oregon submitted no separate recommended findings.

Applicant's Proposed Findings

All of the Applicant's proposed findings have been adopted in substance, with the exception of the findings or portions of findings discussed here.

Finding No. 2, in the portion thereof which states the reason for the provision of a re-regulating dam and reservoir. This portion of the finding has not been adopted because it carries an unwarranted inference that the lower river has no present value for fish production and recreational fishing and that a re-regulating dam and reservoir will tend to create new values. There is no evidence supporting such inference. [2446]

Finding No. 7, in the portion which states the Applicant's proposal to contribute up to $100,000 annually to assist the State in the operation of the fish hatchery, has not been adopted for the reason that such adoption might be interpreted as being an approval of the amount stated, which must be the subject of further negotiation between the licensee and the State.

Finding No. 12, has not been adopted since it is phrased in such a way as to indicate that relative money values are the determinative factor in arriving at a judgment as to whether the licensing of a power project would be in the public interest. Section 10(a) of the Federal Power Act does not directly, nor by implication, state that the Commission's judgment as to whether a project is best adapted to a comprehensive plan for the development of water power and for other beneficial public uses should be based upon the comparative monetary values which are involved.

Finding No. 15, has not been adopted in the form proposed because it does not contain any reference to a requirement that the licensee shall be subject

to such requirements as may be found necessary to preserve and enhance the Deschutes River as a producer of anadromous fish and as a recreational resource.

Staff's Proposed Findings

All of the Staff's proposed findings and conclusions have been adopted as submitted, or in substance, including some matters relating to standard licensing procedures. Findings or portions of proposed findings refused are discussed here. [2447]

Finding No. 6, which concerns an interpretation of the comments of the Federal Power Commission on the 1948 Review Report of the Corps of Engineers, has not been adopted because it carries an implication that, while the Commission indicated in its letter, dated June 21, 1949, that it had given consideration to factors other than the power aspects of the Report of the Corps of Engineers, in fact it considered the non-power aspects of the plan only casually, if at all. The Staff contends that when the Commission said that the plan "represents a desirable and coordinated basic framework for the comprehensive development and utilization of the water resources of the Columbia River basin", it was not directing this comment toward any but the power aspects of the plan, which is, in fact, only one portion of the plan, requiring integration with the other aspects in order to achieve such "comprehensive" development of the watershed.

A reading of the Commission's letter of June 21, 1949 which approved the Army Engineers' comprehensive plan for development of the Columbia River

and its tributaries will disclose that it is stated therein that "The coordinated plan will permit the optimum ultimate development of the potential water power resources of the Basin, consistent with all other water uses and requirements." (Emphasis added) The letter goes on to say that the projects in the plan have been studied by the Commission staff over a period of years, and that the Commission staff has collaborated with the staff of the Corps of Engineers throughout the preparation of the Review Report with particular reference to the power [2448] features involved and has, from time to time, suggested modifications in project and river basin plans in order more fully to develop the power potentialities "without impairing flood control and other important functions". (Emphasis added)

It is true, of course, that any study of a comprehensive plan by the Commission or by its staff is directed primarily to the power features of such plan. As a matter of fact, in the case of the Report on the Columbia, the Commission's views on the power phases of the plan were submitted separately and were made a separate Appendix to the Review Report. But it must also be true that since power is but one aspect of a truly comprehensive plan, and that there are many other important values to be considered, such as irrigation, municipal water supply, flood control, navigation, fish and wildlife conservation, and recreation, there must be an understanding of these other non-power factors and other non-power values and their interrelationship,

in order to appraise the power potentials intelligently and to cooperate wisely in the evolution of a plan and schedule of development which will make optimum use of the water resources involved for all beneficial public purposes. This is elementary. In the construction of a building, carpenters, electricians, plumbers, heating experts, and various other technicians must be employed. But each must have a fairly good understanding and an appreciation of the functions and problems of the others, in order that all of these may be properly coordinated and integrated. In the same way, the Commission as an expert body on power and power capabilities would not appraise a [2449] comprehensive plan and state that the power plans are "consistent with all other water uses" unless it had understood and appreciated the other water uses involved. The word "comprehensive" means "including much" and "comprising many things" and "having a wide scope". The Commission's use of this word in a formal letter must be considered as having the usual, the ordinary meaning, until the contrary has been shown. The text of the Commission's letter does not support the qualified and restricted meaning ascribed to it by the Staff, and the proposed finding is, therefore, rejected.

Findings Nos. 14, 16, and 17, which relate to the probable increase of the peak load for the system of the Applicant, the power supply of the region and the deficiencies forecast, have been adopted with the qualifying word "probably" since these

matters, by their very nature, cannot be found as facts.

Finding No. 20, has not been adopted because the fact stated therein has not been established by the evidence in this record. The omission of such a finding is in no wise fatal to an application, inasmuch as an applicant need only justify the particular project it proposes and is under no burden to show that equivalent power can be produced at other sites at the same or at less cost.

Finding No. 34, has been adopted with the addition of the word "somewhat" to describe the possibility that the Applicant's fish conservation activities may enhance the existing anadromous fish population of the region. [2450]

Finding No. 36, has been re-worded to add $120,000 to the figure for the total annual cost of the Applicant's fishery conservation program. This revision has also been made in the figures contained in Findings Nos. 41 and 43.

Finding No. 37, has been re-worded to indicate more clearly that the estimate of the annual sports value of the trout fishery, that would be lost in the area to be flooded by the main and re-regulating dams, is a pure estimate with little basis in fact.

Finding No. 38, has been re-worded to indicate that the annual money values attributed to the anadromous fish produced above the Pelton site were provided by an intervener opposing the project, and have been adopted for lack of better or contradictory evidence on this subject.

Finding No. 40, has been re-worded to eliminate

the dollar estimate for the annual value to be provided by the Pelton Reservoir. There is nothing in the record which will support such an estimate.

Finding No. 42, which concerns an estimate of the annual values attributable to the Pelton Project, should be qualified to show that this value figure includes an unsupported estimate of value for the recreation to be provided by the new reservoir. Such value, even if it could be determined in advance, should not be included in the value of power.

Findings Nos. 41, 42, and 43, have been re-worded slightly to make it abundantly clear that the figures shown are only estimates and could only be approximate at best.

Finding No. 51, has been re-worded to show the basis of opposition to this project by the Secretary of the Interior. [2451]

Findings and Conclusions

The following findings and conclusions are supported by the record in this matter and have been adopted by the Examiner:[6]

(1) Northwest Power Supply Company originally applied for license for the Pelton project on May 23, 1949. Subsequently, on June 15, 1951, Northwest Power Supply Company and Portland

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[6] Findings Nos. 52, 53, 54, 55, and 56 have been adopted from the Staff's brief, relate to the issuance of the license, and are not findings of fact based upon substantial evidence of record. These findings, however, are included for the convenience of the Commission in the event it decides to issue the license herein recommended.

General Electric Company filed a supplement to the original application in which both agreed and requested that any license which might be issued, be issued to Portland General Electric Company as successor in interest to the original applicant. In the circumstances the Portland Company is the real party in interest, and any license issued should be issued to that Company.

(2) The project consists of:

(a) All lands constituting the project area and enclosed by the project boundary or the limits of which are otherwise defined, and or interest in such lands necessary or appropriate for the purposes of the project, whether such lands or interest therein are owned or held by the applicant or by the United States; such project area and project boundary being more specifically shown and described by certain exhibits which formed part of the application for license and which are designed and described as follows:

Exhibit J—(Dwg. No. revised F95143) (FPC No. 2030-11) "Pelton Power Development General Map" signed Northwest Power Supply Co. by Thomas M. Robins, President on April 6, 1951.

Exhibit K—(Dwg. No. revised F95144) (FPC No. 2030-12) entitled "Pelton Power Development Detail Map" signed Northwest Power Supply Co. by Thomas M. Robins, President on April 6, 1951.

(b) Principal structures, comprising a concrete arch dam approximately 205 feet high; a reservoir with normal pool at elevation 1580 feet; a side channel and tunnel spillway; 3 short penstocks 16

feet in diameter; an outdoor type powerhouse located immediately downstream from the dam, containing [2452] three 52,000 horsepower turbines operating under a gross head of about 152 feet, connected to three 36,000 kilowatt generators; a switching station at the rim of the canyon; a 230 kilovolt transmission line extending about 7 miles eastward to connect to the existing Madras-Maupin line; a concrete gravity and earth re-regulating dam located about 3 miles downstream from the arch dam; a re-regulating reservoir with pond level at elevation 1,422 feet; and fish facilities consisting of an egg-taking situation with hold ponds and adequate water supply at the site of the re-regulating dam, including a caretaker's cottage and other necessary buildings; fish traps in the re-regulating dam and an elevator or a fish ladder leading from the traps to the holding ponds; an expanded Metolius hatchery or a new hatchery wherever desired by the Fish Commission of Oregon; trucks for the transportation of eggs and fingerlings; and land necessary for fish facilities; and appurtenant facilities; the location, nature, and character of which are more specifically shown and described by exhibits hereinbefore citied and by certain other exhibits which also formed part of the application for license and which are designated as follows:

Exhibit L: Drawing in 5 sheets comprising:

Sheet 1—(Dwg. No. revised F97683) (FPC No. 2030-13) entitled "Pelton Power Development General Plan" signed Northwest Power Supply Co. by Thomas M. Robins, President on April 6, 1951.

Sheet 2—(Dwg. No. revised F95135) (FPC No. 2030-14) entitled "Pelton Power Development Power House—Plans" signed Northwest Power Supply Co. by Thomas M. Robins, President on April 6, 1951.

Sheet 3—(Dwg. No. revised F97685) (FPC No. 2030-15) entitled "Pelton Power Development Power House—Cross Section" signed Northwest Power Supply Co. by Thomas M. Robins, President on April 6, 1951.

Sheet 8—(Dwg. No. revised F95142) (FPC No. 2030-19) entitled "Pelton Power Development One Line Diagram" signed Northwest Power Supply Co. by Thomas M. Robins, President on April 6, 1951. [2453]

Sheet 9—(Dwg. No. F114009) (FPC No. 2030-21) entitled "Pelton Power Development Dam for Regulating Reservoir" signed Northwest Power Supply Co. by Thomas M. Robins, President and Portland General Electric Company by James H. Polhemus, President on June 8, 1951.

Exhibit M: A statement in three sheets entitled "General Description and Specifications of Equipment" signed Northwest Power Supply Co. by Thomas M. Robins, President on April 6, 1951.

(c) All other structures, fixtures, equipment or facilities used or useful in the maintenance and operation of the project and located on the project area, including such portable property as may be used or useful in connection with the project or any part thereof, whether located on or off the project area, if and to the extent that the inclusion of such

property as a part of the project is approved or acquiesced in by the Commission; also, all riparian or other rights, the use or possession of which is necessary or appropriate in the maintenance and operation of the project.

(3) Construction, operation, and maintenance of proposed Project No. 2030 would affect public lands and a reservation of the United States. Consequently, under the provisions of Section 23(b) of the Federal Power Act the applicant may not construct, operate or maintain the proposed project works upon those lands of the United States until it shall have received a license under the provisions of that Act.

(4) The refusal of the Oregon Fish Commission, acting under an existing law of the State of Oregon, to issue a permit for the Pelton project, is not a bar to the issuance of a Federal Power Act license and to the construction and operation of the proposed project under such license, if that project is found to meet the standards specified for comprehensive water-power development in the Federal Power Act.

(5) The Deschutes River has not been established as a fish refuge by the State.

(6) The Commission is not, by its comments on the 1948 Review Report, precluded from considering on its merits the pending application for authority to construct the Pelton project. [2454]

(7) The Pelton project as proposed by applicant will utilize the head and stream flow to the maximum economic extent for power purposes.

(8) The Pelton project as outlined in the plans would conform to sound engineering practice and be safe and adequate.

(9) The construction costs estimated by the applicant for the Pelton project, including those for fishery facilities, are reasonable.

(10) The annual cost at load center of the power output of the Pelton project plant is $2,085,000 and such cost would be increased by $95,000 annually if contemplated future irrigation diversions are made.

(11) The value at load center of the power output of the Pelton project plant is estimated at about $3,435,000.

(12) Inasmuch as Portland General Electric Company had only 190,000 kilowatts of peaking capacity in its own generating plants, a considerable amount of power supply was purchased from others to meet its 1950 peak load of 472,000 kilowatts. Construction of the proposed project would reduce the purchases to the extent of the capability of the plant.

(13) During the five year period 1950-1955, the peak load for the system of Portland General Electric Company probably will increase by at least 183,000 kilowatts and the energy requirements during the same period probably will increase by at least 884,300,000 kilowatt-hours, and load probably will continue to increase beyond 1955.

(14) The Pelton project would have an installed capacity of 108,000 kilowatts (156,000 horsepower) and an estimated average annual output of 375,000,000 kilowatt-hours. The dependable capacity would

be 108,000 kilowatts on the load of the Portland General Electric Company and all of the energy to be made available would be usable. The peaking capacity would be 120,000 kilowatts.

(15) The Pacific Northwest Region has been deficient in dependable capacity to supply the area loads from 1946 to 1951 and probably will continue to be deficient until 1956, even if all projects now under construction and proposed for construction are constructed and completed on time. [2455]

(16) The Pacific Northwest region probably will not have an ample amount of dependable power supply until 1959 or later.

(17) Due to the size of its proposed installation and its location, the Pelton project would be a valuable addition to the power of the Pacific Northwest.

(18) A power market will be available for the electric output of the Pelton project as soon as it can be placed in operation.

(19) New steam-electric generating stations, while alternative to the Pelton project as a new source of power supply, would be more costly and difficult to justify economically.

(20) The Portland General Electric Company does not have the preference given under law to public bodies in the purchase of power from Bonneville Power Administration.

(21) New sources of dependable power supply through purchases from Bonneville Power Administration and other systems are not now available and will not be available to Portland General Electric for several years.

(22) The fishery of the Deschutes River includes spring chinook salmon, some sockeye salmon, summer steelhead trout (the foregoing being anadromous) and resident trout.

(23) It was estimated that 2,500 spring chinook salmon and 5,000 summer steelhead trout pass the Pelton site on their way upstream, but these estimates are very rough and subject to considerable error.

(24) The record fails to show that the Deschutes River system above the Pelton site is capable under natural conditions of producing anadromous fish in substantially greater numbers than are now produced there.

(25) Although there is no commercial fishery on the Deschutes River, it contributes to the commercial fisheries of the Columbia River and the offshore trolling areas in the Pacific Ocean.

(26) There is an Indian subsistence fishery on the Deschutes River.

(27) The construction of the proposed dam at the Pelton site will provide a block to the natural passage of anadromous fish.

(28) The applicant proposes as part of the Pelton project to provide facilities for conserving the runs of anadromous fish in accordance with plans proposed by the Fish Commission of the State of Oregon. [2456]

(29) There is nothing novel, unusual or out of the ordinary with respect to the fishery conservation facilities proposed by applicant.

(30) The applicant proposes to operate or ar-

range for the operation of the fish conservation facilities in accordance with approved methods.

(31) Construction, operation and maintenance of the Pelton project will not be detrimental to the fishery resources below the re-regulating dam.

(32) There is no substantial evidence in the record to show that the fishery facilities proposed by the applicant in accordance with the plans prepared by the Fish Commission of Oregon will not maintain existing runs, and there is a possibility that the runs can be increased somewhat.

(33) The capital cost of the facilities proposed by applicant for conserving the anadromous fish above Pelton dam site is estimated at $4,430,000, and such estimate is reasonable.

(34) The total annual cost of the applicant's fishery conservation program, including fixed charges on investment and for operation and maintenance, is estimated at $795,000, and such estimate is reasonable.

(35) The annual sports value of trout fishery that would be lost in the area to be flooded by the main and re-regulating dams has been estimated as being about $24,000.

(36) The annual value of present anadromous fish produced above Pelton dam site has been estimated by the Oregon Fish Commission as being approximately $177,375, which estimate apparently includes about $15,600 attributable to recreational value resulting from sports fishery.

(37) The main reservoir, with elevation 150 feet above the present water elevation, would be more

accessible to the public for recreational use, particularly upon completion of a contemplated State highway, and will offer recreational opportunities to people from local and distant areas.

(38) There will be some benefit to the public by reason of the recreation to be provided by the Pelton dam reservoir, but it is not possible to assign a prospective monetary value thereto with any degree of accuracy. [2457]

(39) The total of annual costs and losses attributable to the Pelton project, if constructed has been estimated to be about $3,099,000.

(40) The total of annual values attributable to the Pelton project has been estimated to be about $3,450,000. This figure contains an unsupported estimate for the recreation value of the reservoir which will not accrue to the benefit of the Applicant.

(41) The total of annual values attributable to the Pelton project exceed the total of annual costs and losses associated therewith by about $351,000.

(42) The Pelton project as proposed by the Applicant can be financed, and there is nothing substantial in the record to cast doubt upon its economic feasibility.

(43) Based on cost data in the record and on estimates made to approximate other costs, the Pelton project is financially and economically feasible.

(44) Under present circumstances and conditions, and upon the terms and conditions hereinafter recommended for inclusion in the license, the project is best adapted to a comprehensive plan for the improvement and utilization of water-power de-

velopment, for the conservation and preservation of the fish and wildlife resources, and for other beneficial public uses including recreational purposes.

(45) The Portland General Electric Company is a corporation organized under the laws of the State of Oregon and has submitted satisfactory evidence of compliance with the requirements of all applicable State laws insofar as necessary to effect the purposes of a license for the project.

(46) No conflicting application is before the Commission. Public notice has been given as required by the Act.

(47) The project does not affect any Government dam, nor will the issuance of a license therefor, as hereinafter provided, affect the development of any water resources for public purposes which should be undertaken by the United States itself.

(48) The Secretary of Agriculture, who has supervision over the Central Oregon Land Utilization Project, has reported favorably upon the application and requested inclusion in the license of a special condition which is hereinafter provided. [2458]

(49) The Secretary of the Interior has recommended that the license be denied because the Lower Columbia Fisheries program contemplates greater use of the Deschutes as a fish propagation stream, but requests that, if a license is issued, a special condition be included with respect to certain water rights. The requested condition, with slight modifications, is hereinafter provided.

(50) The issuance of a license for the project as hereinafter provided will not interfere or be in-

consistent with the purposes for which any reservation or withdrawal of public lands was created or acquired.

(51) The installed horsepower capacity of the project hereinafter authorized is 156,000 horsepower.

(52) The amount of annual charges to be paid under the license for the purpose of reimbursing the United States for the costs of administration of Part I of the Act is reasonable as hereinafter fixed and specified, and the amount of annual charges to be paid under the license for the purpose of recompensing the United States for the use, occupancy and enjoyment of its lands, including transmission line right-of-way, and for the purpose of recompensing the Indians for the use, occupancy and enjoyment of tribal lands within the Warm Springs Indian Reservation, should be later determined.

(53) In accordance with Section 10(d) of the Act, the rate of return upon the net investment in the project and the proportion of surplus earnings to be paid into and held in amortization reserves are reasonable as hereinafter specified.

(54) The exhibits specified in paragraph (2), filed as a part of the application as supplemented, conform to the Commission's rules and regulations, and should be approved as a part of the license for the project.

(55) The applicant has not submitted Exhibit L drawings showing the final designs of an arch dam, the spillway and the re-regulating dam. Such draw-

ings, in conformity with the Commission's rules and regulations, should be filed with and approved by the Commission before construction of those structures is commenced.

(56) The applicant should file, within one year of the effective date of the license, Exhibits F and K in conformity with the Commission's rules and regulations. [2459]

Ultimate Conclusion

It is concluded under the provisions of the Federal Power Act, that a license should be issued to Portland General Electric Company which would authorize it to proceed at once with the construction, operation, and maintenance of the hydroelectric project on the Deschutes River in Oregon covered by the application for Project No. 2030 and it is hereby recommended that a suitable license be issued by the Commission. The license should contain proper provisions which will require the licensee to take all reasonable steps to protect and to maintain the anadromous fish population now using the stream, and will require the licensee to compensate the Warm Springs Indians for the use of their tribal lands which will be affected by the construction and operation of the project. A form of recommended order accompanies and is a part of this decision.

As provided in Rule 1.30 of the Commission's Rules of Practice and Procedure and the Commission's order in this matter, issued May 1, 1951, the record of the hearing in this matter, duly certified, is being transmitted, simultaneously with this de-

cision and recommended order, to the Commission for its consideration. [2460]

ORDER ISSUING LICENSE (MAJOR)

Application was filed on May 23, 1949 by the Northwest Supply Company of Portland, Oregon, for a license under the Federal Power Act for a proposed hydroelectric development, designated as Project No. 2030, to be located on the Deschutes River in Jefferson County in Oregon, affecting lands of the United States and the Warm Springs Indian Reservation.

A public hearing on the aforementioned application was held in Portland, Oregon, commencing on June 11, 1951, before an Examiner of the Commission pursuant to the Commission's order issued May 1, 1951 and later amended, in which hearing all parties, including the Applicant (Portland General Electric Company having been substituted for the original applicant for all practical purposes), and the Staff of the Commission, as well as two agencies of the State of Oregon, and the Oregon Division of the Isaac Walton League of America, Inc., participated and presented testimony and documentary exhibits. All persons desiring to speak either in favor of or in opposition to the issuance of a license for the proposed project were heard.

After the close of the hearing, briefs were filed by the various parties and by the Staff. A recommended decision was rendered by the Presiding Examiner containing findings and conclusions based

upon the record developed before him. The Examiner recommended that a license be issued.

Upon consideration of the entire record in this matter, including the reports of the Federal agencies, protests from interested citizens, and the briefs of the parties filed in connection therewith as well as the findings and conclusions recommended by the Examiner, the Commission orders: [2461]

(A) A license is hereby issued to Portland General Electric Company under Section 4(e) of the Federal Power Act (hereinafter referred to as the Act) for a period of 50 years, effective as of the first day of the month in which acceptance thereof is filed with the Commission by the licensee, for the construction, operation, and maintenance of Project No. 2030 upon public lands of the United States and upon tribal lands within the Warm Springs Indian Reservation, subject to the terms and conditions of the Act which is incorporated by reference as a part of this license, and subject to such rules and regulations as the Commission has issued or prescribed under the provisions of the Act.

(B) This license is also subject to the terms and conditions set forth in Form L-2, entitled "Terms and Conditions of License for Unconstructed Major Project Affecting Lands of the United States", which terms and conditions are attached hereto and made a part hereof; and subject to the following special conditions set forth herein as additional articles:

Article 25. The Licensee shall pay to the United States the following annual charges:

(1) For the purpose of reimbursing it for the costs of administration of Part I of the Act, one (1) cent per horsepower on the authorized installed capacity (156,000 horsepower), plus two and one-half (2½) cents per 1,000 kilowatt-hours of gross energy generated by the project during the calendar year for which the charge is made.

(ii) For the purpose of recompensing the United States for the use, occupancy, and enjoyment of its lands, including transmission-line right-of-way, such reasonable *changes* as may be hereafter specified by the Commission.

(iii) For the use of tribal lands embraced within the Warm Springs Indian Reservation, such reasonable charge, including electric service as may hereafter be specified by the Commission, subject to the approval of the Indian tribe having jurisdiction over such lands as provided by law. [2462]

Article 26. The Commission reserves the right, after notice and opportunity for hearing, to adjust the normal reservoir elevation of the Pelton project at such time as the proposed Metolius project located upstream is constructed to make the most economical use of water resources of the Deschutes River and its tributaries.

Article 27. The licensee shall construct, maintain and operate or shall arrange for the construction, maintenance and operation of such fish ladders, fish traps or other fish handling facilities or fish protective devices and provide fish hatchery facilities for the purpose of conserving the fishery resources above the Pelton site and comply with such

reasonable modifications of the project structures and operation in the interest of fish life as may be prescribed hereafter by the Commission upon its own motion or upon the recommendations of the Secretary of the Interior and the Fish and Game Commissions of the State of Oregon.

Article 28. Any rights to the use of waters in the Deschutes River and its tributaries in connection with the licensee's project under this license shall be subordinate to:

(i) All existing rights, whether or not perfected, to the waters of the Deschutes River and its tributaries for domestic, stock, municipal and irrigation purposes, including the right to store any such waters in the proposed Benham Falls, Post and Prineville reservoirs and in the existing Crane Prairie, Crescent Lake, and Wickiup reservoirs; and

(ii) The use of additional flows of the Deschutes River and its tributaries pursuant to rights which may be initiated hereafter for the diversion and storage of waters for domestic, municipal, stock, and irrigation purposes in connection with any reclamation projects undertaken pursuant to the Federal Reclamation Laws (Act of June 17, 1902, 32 Stat. 388, and acts amendatory thereof or supplementary thereto), the amounts of water to be used under the additional rights, together with the uses under existing rights whatever they may be, not, by reason of the additional right, to exceed these quantities: [2463]

(a) Deschutes River and its tributaries above Cline Falls—entire flow;

(b) Squaw Creek—all flows during the non-irrigation season;

(c) Lake Creek—20,000 acre-feet annually;

(d) Crooked River and its tributaries—all the flows above the Highway Bridge at the place where U.S. Highway 97 crosses the Crooked River Canyon;

(e) Crooked River below the Highway Bridge—not to exceed 2,500 acre-feet annually for the proposed Deschutes project domestic water system; and

(f) An additional 400 second-feet that may be taken above the licensee's project either from the Deschutes River below Cline Falls or the Crooked River below the Highway Bridge during the irrigation season.

Article 29. The licensee shall commence construction of the project within six months of the effective date of the license, shall thereafter, in good faith and with due diligence, prosecute such construction and shall complete project works in 24 months.

Article 30. The licensee shall submit, in accordance with the Commission's rules and regulations, Exhibit L drawings showing the final design of the arch dam, the spillway and the re-regulating dam, and licensee shall not begin construction of those structures until the Commission approves the exhibit.

Article 31. The licensee shall within one year of the effective date of this license, file with the Com-

mission Exhibits F and K in conformity with the Commission's rules and regulations.

Article 32. The licensee shall submit for Commission approval detailed plans of fishery facilities described herein as part of the project and shall construct such facilities simultaneously with the construction of the power facilities in such manner that populations of anadromous fish will be maintained during the construction period and thereafter.

Article 33. In preparing plans and construction schedules for fishery facilities the licensee shall consult and cooperate with the U. S. Fish and Wildlife Service, Department of the Interior, and the Fish and Game Commissions of the State of Oregon.

Article 34. The licensee shall negotiate with the Fish and Game Commissions of the State of Oregon with respect to the amount the licensee shall pay each year to defray operation and maintenance costs of the fishery facilities to be provided under this license. Should the licensee and the State agencies fail to agree on the amount to be paid by the licensee for such purposes, the Commission reserves the right to determine the amount of this annual payment after notice and opportunity for hearing.

Article 35. The licensee shall destroy no more of the surface or vegetative cover of lands of the United States within the Central Oregon Land Utilization Project than is essential for the purposes of the licensed project and the licensee shall, to the satisfaction of the authorized representative of the Commission, take necessary measures to prevent excess erosion upon such lands within the Utiliza-

tion Project as are also included in the licensed project.

(C) The exhibits designated and described in paragraph (2) above are approved as part of this license.

(D) This order shall become final 30 days from the date of its issuance unless application for rehearing shall be filed within the 30 day period provided by Section 313(a) of the Act.

(E) This license shall be accepted and returned to the Commission within 60 days from the date of issuance of this order.

Washington, D. C., October 22, 1951.

WILLIAM J. COSTELLO,
Presiding Examiner. [2465]

[Title of Commission and Cause.]

EXCEPTIONS OF THE STATE OF OREGON, THE OREGON FISH COMMISSION AND THE OREGON STATE GAME COMMISSION, INTERVENERS, TO FINDINGS, CONCLUSIONS AND RECOMMENDED ORDER OF EXAMINER'S RECOMMENDED DECISION

May It Please the Commission:

Now comes the State of Oregon, the Oregon Fish Commission and the Oregon State Game Commission, interveners hereinafter referred to as the State, by George Neuner, Attorney General, and Arthur

G. Higgs, Assistant Attorney General, its attorneys, and respectfully excepts to the findings, conclusions, ultimate conclusions (both as to fact and law) and to the recommended order contained in the recommended decision of the presiding examiner herein dated October 22, 1951, and as grounds for such exceptions respectfully shows:

I.

The third finding and conclusion of law is contrary to the law, said finding and conclusion being as follows:

"(3) Construction, operation and maintenance of proposed Project No. 2030 would affect public lands and a reservation of the United States. Consequently, under the provisions of Section 23(b) of the Federal Power Act the applicant may not construct, operate or maintain the proposed project works upon those lands of the United States until it shall have received a license under the provisions of that Act." [2469]

The following is proposed as a substitute in lieu thereof:

(3) Construction, operation, and maintenance of proposed Project No. 2030 would affect public lands and a reservation of the United States. Consequently, under the provisions of Section 23(b) of the Federal Power Act the applicant may not construct, operate or maintain the proposed project works upon those lands of the United States until it shall have received a license under the provisions of that Act and, under the provisions of Section

9(b) of the Federal Power Act, the applicant may not construct, operate or maintain the proposed project works until it shall have received a preliminary permit or license from the Hydroelectric Commission of the State of Oregon authorizing it to construct, operate and maintain the proposed project.

The following statutory provisions and authorities are relied upon in support of the proposed substituted findings and conclusions of law.

1.

The common-law doctrine of riparian rights has been virtually abrogated in Oregon and for practical purposes appears to be no longer more than a legal fiction.

California-Oregon Power Co. vs. Beaver Portland Cement Co., 295 U.S. 142.

2.

All waters within the state (Oregon) from all sources of water supply belong to the public.

O. C. L. A., sec. 116-401.

3.

The above section and section 116-403, O. C. L. A., abolish the rule that a riparian owner has the right to have a stream [2470] continue to flow substantially undiminished in its natural channel.

California-Oregon Power Co. vs. Beaver Portland Cement Co., 73 Fed. 2nd 555.

4.

The common-law rule as to "continuous flow" of

a stream, or riparian doctrine, may be changed by statute except as such change may affect some vested right.

Re: Water Rights of Hood River, 114 Or. 112, 227 p. 1065.

5.

The Oregon water code has been sustained as constitutional by the Supreme Court of the United States.

California-Oregon Power Co. vs. Beaver Portland Cement Co., 295 U. S. 142, 79 L. ed. 1356.

6.

The rights, title and interest in and to all water for the development of waterpower and to waterpower sites, which the state of Oregon now owns or may hereafter acquire, shall be held in perpetuity.

Article 11-D, sec. 1, Constitution of Oregon, 1859.

7.

The Desert Land Act (Act of Congress, March 3, 1877, amended 43, U.S.C.A. 321) had the effect to sever all waters upon the public domain, not theretofore appropriated, from the land itself.

California-Oregon Power Co. vs. Beaver Portland Cement Co., Brush vs. Commissioners of Internal Revenue 300 U. S. 352.

8.

The power to legislate on the question of the acquisition and control of water rights has never been

delegated to the United States and hence such power properly belongs to the individual states.

Kansas vs. Colorado, 206 U. S. 46, 94.
Fox vs. Ickes, 137 Fed. 2nd 30.

9.

The waters of the state of Oregon may not be appropriated without its consent.

Sec. 116-401 et seq. (Oregon water code O. C. L. A.)

10.

There is no conflict between the Oregon laws and the Federal Power Act.

First Iowa Hydroelectric Cooperative vs. Federal Power Commission, 328 U. S. 152, 171, 182 (1946).

11.

Sources of constitutional authority (to regulate interstate and foreign commerce, administer public lands and reservations of the United States) are all applied in the Federal Power Act to the development of the navigable waters of the United States.

First Iowa Hydroelectric Cooperative vs. Federal Power Commission, (Supra).

12.

Under the Desert Land Acts of 1866, 1870 and 1877 (14 Stat. 251; 16 Stat. (sec. 661, title 43 U. S. Code) 43 U. S. C. A. 321) the Federal Government irrevocably surrendered and relinquished [2472] to the states whatever rights it may have had to control

the use of waters of nonnavigable streams in the west.

Jennison vs. Kirk 98 U. S. 453, 25 L. ed. 240 (1879).

13.

The Desert Land Acts (above cited) had the effect of subordinating the common-law doctrine of riparian rights to that of appropriation in the states affected by such acts.

California-Oregon Power Company vs. Beaver Portland Cement Company, 295 U. S. 142, 157, 158 (1935) 55 S. Ct. 725.

14.

The doctrine of right by prior appropriation was recognized by the legislation of Congress in 1866.

Atchinson vs. Peterson 20 Wall. 507, 513; 22 L. ed. 414.

Basey vs. Gallagher, 20 Wall. 670, 683, 684; 22 L. ed. 452.

Broder vs. Natoma Water and Mining Company, 11 Otto 274, 276; 25 L. ed. 790.

United States vs. Rio Grande D. & I. Company, 174 U. S. 690, 706, 19 S. Ct. 770.

15.

By the Act of March 3, 1877, c. 107, 19th Stat. 377, the right to appropriate such an amount of water as might be necessarily used for the purpose of irrigation and reclamation of desert land, part of the public domain, was granted.

Gutierres vs. Albuquerque Land & Irrigation Company, 188 U. S. 545, 553, 23 S. Ct. 338.

16.

Following the Act of 1877 all nonnavigable waters then a part of the public domain became publici juris, subject to the [2473] plenary control of the designated states with the right in each to determine for itself to what extent the rule of appropriation or the common-law rule in respect of riparian rights should obtain.

California-Oregon Power Company vs. Beaver Portland Cement Company (supra).

17.

By the Desert Land Act of 1877 Congress had severed the land and waters constituting the public domain. Acquisition of government title to land was not to carry with it a water right; but all nonnavigable waters were reserved for the use of the public under the laws of the various arid-land states.

Ickes vs. Fox, 300 U. S. 82, 95, 57, S. Ct. 412.

Brush vs. Commissioners of Internal Revenue, 300 U. S. 352, 367; 57 S. Ct. 495.

II.

The fourth finding and conclusion of law is contrary to the law, said finding and conclusion being as follows:

"(4) The refusal of the Oregon Fish Commission, acting under an existing law of the State of Oregon, to issue a permit for the Pelton project, is not a bar to the issuance of a Federal Power Act license and to the construction and operation of the proposed project under such license; if that project is found to meet the standards specified for comprehensive

water-power development in the Federal Power Act."

The following is proposed as a substitute in lieu thereof:

(4) The refusal of the Oregon Fish Commission, acting under an existing law of the State of Oregon, to issue a permit for the Pelton project, is a bar to the issuance of a Federal Power Act license and to the construction and operation of the proposed project under such license, under provisions of section 9(b) of the Federal Power Act. [2474]

The following statutory provisions and authorities are relied upon in support of the proposed substituted findings and conclusions of law.

1.

The rivers and streams of water in the territory of Oregon in which salmon are found shall not be obstructed by dams or otherwise, unless such dams or obstructions are so constructed as to allow salmon to pass freely up and down such rivers and streams.

Act of Congress (August 14, 1848, Territory of Oregon Act).

2.

All laws in force in the territory of Oregon when this constitution takes effect, and consistent therewith, shall continue in force until altered or repealed.

Article XVIII, sec. 7, Constitution of Oregon, 1859.

3.

In the event that any person desires to construct

a dam in any of the streams of this state to a height that will make a fish ladder or fishway thereover impracticable, in the opinion of the commission, then such person may make an application to the commission for a permit to construct such dam, and the commission is hereby authorized to grant such permit in its discretion, upon the condition that the person so applying for such permit shall convey to the state of Oregon a site of the size and dimensions satisfactory to the commission, at such place as may be selected by the commission, and erect thereon a hatchery and hatchery residence, according to [2475] plans and specifications to be furnished by the commission, and enter into an agreement with the commission, secured by a good and sufficient bond, to furnish all water and light without expense, to operate said proposed hatchery; and no permit for the construction of any such dam shall be given by the commission until the person applying for such permit shall have actually conveyed said land to the state and erected said hatchery and hatchery residence in accordance with said plans and specifications.

Ch. 105, sec. 49, Oregon Laws 1921; O.C.L.A., sec. 83-316.

4.

From and after the date when this act takes effect no right to appropriate or to use the waters of the lakes, rivers, streams or other bodies of water within the state of Oregon, including water over which this state has concurrent jurisdiction, in connection with the development of any water-power

project for the generation of electricity, shall be initiated, perfected, acquired or held, except for and during the period or periods or extensions thereof as herein stated, and pursuant to the provisions hereof. (L.1931, ch. 67, sec. 2, p. 82; O.C. 1935 Supp., sec. 47-2102.)

Sec. 119-102, O.C.L.A.

5.

From and after the taking effect of this act, no water-power project involving the use of the waters of any of the lakes, rivers, streams or other bodies of water within the state of Oregon, including waters over which this state has concurrent jurisdiction, for the generation of electricity, shall be begun or constructed except in conformity [2476] with the provisions hereof. (L. 1931, ch. 67, sec. 3, p. 83; O.C. 1935 Supp., sec. 47-2103.)

Sec. 119-103, O.C.L.A.

III.

The State excepts to the following recommended findings and conclusions as being contrary to the greater weight of the evidence:

"(6) The Commission is not, by its comments on the 1948 Review Report, precluded from considering on its merits the pending application for authority to construct the Pelton project."

"(24) The record fails to show that the Deschutes River system above the Pelton site is capable under natural conditions of producing anadromous fish in substantially greater numbers than are now produced there."

"(31) Construction, operation and maintenance of the Pelton project will not be detrimental to the fishery resources below the re-regulating dam."

"(32) There is no substantial evidence in the record to show that the fishery facilities proposed by the applicant in accordance with the plans prepared by the Fish Commission of Oregon will not maintain existing runs, and there is a possibility that the runs can be increased somewhat."

The following are proposed as substitutes in lieu thereof:

(6) Proposals by the U. S. Fish and Wildlife Service for the improvement of spawning conditions and an increase of the salmon runs into tributaries to the lower Columbia River have been expanded and formalized by the Fish and Wildlife Service in the Lower Columbia River Fishery Plan. The purpose of the plan is to conserve, rehabilitate and enhance the fishery resources of the Columbia Basin, and the plan was devised to offset effects caused by constructed and proposed dams in the Columbia River Basin. The plan proposes to develop salmon runs in the tributaries of the Columbia below McNary Dam, including the Deschutes River, to the highest level of productivity by the removal of obstructions, the abatement of pollution, the screening of diversions, fishway construction, transplantation of upriver runs, the extension of artificial propagation and [2477] the establishment of fish refuges in streams specifically reserved for such purpose.

(24) The Lower Columbia River Fishery Plan was conceived around 1945. In 1946, Congress pro-

vided legislation which enabled the States to be brought directly into the program, and on June 23, 1948, the Fish and Game Commissions of the States of Washington, Oregon, and Idaho entered into an agreement with the Fish and Wildlife Service outlining the areas of authority of the States and the services and duties of each under this fisheries program. The program generally is to be performed by the States under the agreement, with funds appropriated by Congress in the annual appropriation made to the Army Engineers to carry out its civil functions, and these funds are then transferred by the Army to the Fish and Wildlife Service.

(31) While Congress has not specifically approved or adopted the $20,000,000 Lower Columbia River Fishery Plan, it has specifically authorized and appropriated Federal funds to be used to forward the Plan in the fiscal years of 1949, 1950 and 1951.

(32) Coupled with the plans of the Lower Columbia River Fishery Program is a careful scheduling of Federal dam construction in the Basin, with emphasis on early construction in the upper basin so as to afford the necessary time to improve the lower basin tributaries before all of the main dams in the lower basin are constructed.

(32a) Both the U. S. Bureau of Reclamation and the Army Engineers have subscribed to the objectives of the Lower Columbia River Fishery Program and to its completion by the Fish and Wildlife Service as rapidly as funds will permit. The Army Engineers in the comprehensive basin plan

included in the "Review Report on Columbia River and Tributaries" have given full approval to this program, and have recommended that development of the basin be so scheduled as to permit the full implementation of the program. The Board of Engineers for Rivers and Harbors have recommended that the fishery program be advanced, and the Chief of Engineers in his letter transmitting the Review Report to the Secretary of the Army for submission to the Congress recommended that Congress give favorable consideration to the Lower Columbia River Fisheries Plan.

(32b) The Review Report of the Army Engineers on the Columbia River has been formally approved by the Federal Power Commission as "representing a desirable and coordinated basic framework for the comprehensive development and utilization of the water resources of the Columbia River Basin" and the Review Report was approved by the President through the Bureau of the Budget for submission to the Congress. [2478]

(32c) The President's Water Resources Policy Commission has suggested that that portion of the basin embraced by the Lower Columbia River Fisheries Program should be held inviolate from reservoir construction or other water control works not already authorized or licensed, at least until the completion of the construction and development phases of the fisheries program. This advisory group also has recommended that construction of even authorized works not already underway and which are considered potentially of great damage to

the fisheries should be deferred as long as suitable alternative projects can be developed.

IV.

The State further excepts to the conclusion and the reason on which it is based as to jurisdiction of the Federal Power Commission to issue an appropriate license herein, said conclusion being as follows: (p. 13)

"It is concluded, therefore, that the inability of the Applicant to obtain permits from the State of Oregon to proceed with the proposed project, does not per se inhibit the authority of the Commission to issue an appropriate license authorizing the construction, operation, and maintenance of a hydroelectric power project which must occupy lands of the United States and affect the Warm Springs Indian reservation."

The State proposes in lieu of said conclusion the following:

It is concluded, therefore, that the inability of the Applicant to obtain permits from the State of Oregon to proceed with the proposed project, deprives the Commission of the authority to issue an appropriate license authorizing the construction, operation and maintenance of a hydroelectric power project despite the fact that such project will occupy lands of the United States and will affect the Warm Springs Indian reservation.

The following statutory provisions and authorities are relied upon in support of the proposed substituted findings and conclusions of law.

The same as Nos. I and II. [2479]

Ultimate Conclusion

The State further excepts to the ultimate conclusion for the reason that it is contrary to the evidence and the law, said conclusion being as follows:

"It is concluded under the provisions of the Federal Power Act, that a license should be issued to Portland General Electric Company which would authorize it to proceed at once with the construction, operation, and maintenance of the hydroelectric project on the Deschutes River in Oregon covered by the application for Project No. 2030 and it is hereby recommended that a suitable license be issued by the Commission. The license should contain proper provisions which will require the licensee to take all reasonable steps to protect and to maintain the anadromous fish population now using the stream, and will require the licensee to compensate the Warm Springs Indians for the use of their tribal lands which will be affected by the construction and operation of the project. A form of recommended order accompanies and is a part of this decision."

The State proposes in lieu of said ultimate conclusion as follows:

It is concluded that the pending application of the Portland General Electric Company for a license authorizing it to proceed with the construction, operation and maintenance of the hydroelectric project on the Deschutes River in Oregon covered by the application for Project No. 2030 does not conform to the statutory requirements of sec-

tion 10(a) of the Federal Power Act in that it is not best adapted to a comprehensive plan, for other beneficial uses, including recreational purposes; that the application does not conform to section 9(b) of the Federal Power Act in that it does not show that the applicant has obtained permits from the State of Oregon to proceed with the proposed project; that the plans of the applicant are in conflict with the comprehensive plan for orderly development of the Columbia River Basin as evolved and recommended to Congress by the corps of engineers, which plan has been fully approved by this Commission and are also in conflict with the Lower Columbia River Fishery Plan and the act of Congress enabling the states of Washington, Oregon and Idaho to inaugurate a plan thereunder and are in violation of the agreement of June 23, 1948, between the states of Oregon, Washington and Idaho and the United States Fish and Wildlife Service, entered into under said Lower Columbia River Fishery Plan. [2480]

It is, therefore, respectfully recommended that an order be adopted by the Commission denying the application herein without prejudice.

V.

The State excepts to the recommended order contained in the recommended decision which is as follows, for the reason that said recommended order is contrary to the evidence and law in this case.

[Title of Commission and Cause.]

ORDER ISSUING LICENSE (MAJOR)

"Application was filed on May 23, 1949, by the Northwest Supply Company of Portland, Oregon, for a license under the Federal Power Act for a proposed hydroelectric development, designated as Project No. 2030, to be located on the Deschutes River in Jefferson County in Oregon, affecting lands of the United States and the Warm Springs Indian Reservation.

"A public hearing on the aforementioned application was held in Portland, Oregon, commencing on June 11, 1951, before an Examiner of the Commission pursuant to the Commission's order issued May 1, 1951, and later amended, in which hearing all parties, including the Applicant (Portland General Electric Company having been substituted for the original applicant for all practical purposes), and the Staff of the Commission, as well as two agencies of the State of Oregon, and the Oregon Division of the Isaac Walton League of America, Inc., participated and presented testimony and documentary exhibits. All persons desiring to speak either in favor of or in opposition to the issuance of a license for the proposed project were heard.

"After the close of the hearing, briefs were filed by the various parties and by the Staff. A recommended decision was rendered by the Presiding Examiner containing findings and conclusions based upon the record developed before him. The Examiner recommended that a license be issued. [2481]

"Upon consideration of the entire record in this matter, including the reports of the Federal agencies, protests from interested citizens, and the briefs of the parties filed in connection therewith as well as the findings and conclusions recommended by the Examiner, the Commission orders:

"(A) A license is hereby issued to Portland General Electric Company under Section 4(e) of the Federal Power Act (hereinafter referred to as the Act) for a period of 50 years, effective as of the first day of the month in which acceptance thereof is filed with the Commission by the licensee, for the construction, operation, and maintenance of Project No. 2030 upon public lands of the United States and upon tribal lands within the Warm Springs Indian Reservation, subject to the terms and conditions of the Act which is incorporated by reference as a part of this license, and subject to such rules and regulations as the Commission has issued or prescribed under the provisions of the Act.

"(B) This license is also subject to the terms and conditions set forth in Form L-2, entitled 'Terms and Conditions of License for Unconstructed Major Project Affecting Lands of the United States,' which terms and conditions are attached hereto and made a part hereof; and subject to the following special conditions set forth herein as additional articles:

"Article 25. The Licensee shall pay to the United States the following annual charges:

"(1) For the purpose of reimbursing it for the

costs of administration of Part I of the Act, one (1) cent per horsepower on the authorized installed capacity (156,000 horsepower), plus two and one-half (2½) cents per 1,000 kilowatt-hours of gross energy generated by the project during the calendar year for which the charge is made.

(ii) For the purpose of recompensing the United States for the use, occupancy, and enjoyment of its lands, including transmission-line right-of-way, such reasonable changes as may be hereafter specified by the Commission.

"(iii) For the use of tribal lands embraced within the Warm Springs Indian Reservation, such reasonable charge, including electric service as may hereafter be specified by the Commission, subject to the approval of the Indian tribe having jurisdiction over such lands as provided by law. [2482]

"Article 26. The Commission reserves the right, after notice and opportunity for hearing, to adjust the normal reservoir elevation of the Pelton project at such time as the proposed Metolius project located upstream is constructed to make the most economical use of water resources of the Deschutes River and its tributaries.

"Article 27. The licensee shall construct, maintain and operate or shall arrange for the construction, maintenance and operation of such fish ladders, fish traps or other fish handling facilities or fish protective devices and provide fish hatchery facilities for the purpose of conserving the fishery resources above the Pelton site and comply with such reasonable modifications of the project structures and

operation in the interest of fish life as may be prescribed hereafter by the Commission upon its own motion or upon the recommendations of the Secretary of the Interior and the Fish and Game Commissions of the State of Oregon.

"Article 28. Any rights to the use of waters in the Deschutes River and its tributaries in connection with the licensee's project under this license shall be subordinate to:

"(i) All existing rights, whether or not perfected, to the waters of the Deschutes River and its tributaries for domestic, stock, municipal and irrigation purposes, including the right to store any such waters in the proposed Benham Falls, Post and Prineville reservoirs and in the existing Crane Prairie, Crescent Lake, and Wickiup reservoirs; and

"(ii) The use of additional flows of the Deschutes River and its tributaries pursuant to rights which may be initiated hereafter for the diversion and storage of waters for domestic, municipal, stock, and irrigation purposes in connection with any reclamation projects undertaken pursuant to the Federal Reclamation Laws (Act of June 17, 1902, 32 Stat. 388, and acts amendatory thereof or supplementary thereto), the amounts of water to be used under the additional rights, together with the uses under existing rights whatever they may be, not, by reason of the additional right, to exceed these quantities:

"(a) Deschutes River and its tributaries above Cline Falls—entire flow; [2483]

"(b) Squaw Creek—all flows during the non-irrigation season;

"(c) Lake Creek—20,000 acre-feet annually;

"(d) Crooked River and its tributaries—all the flows above the Highway Bridge at the place where U. S. Highway 97 crosses the Crooked River Canyon;

"(e) Crooked River below the Highway Bridge —not to exceed 2,500 acre-feet annually for the proposed Deschutes project domestic water system; and

"(f) An additional 400 second-feet that may be taken above the licensee's project either from the Deschutes River below Cline Falls or the Crooked River below the Highway Bridge during the irrigation season.

"Article 29. The licensee shall commence construction of the project within six months of the effective date of the license, shall thereafter, in good faith and with due diligence, prosecute such construction and shall complete project works in 24 months.

"Article 30. The licensee shall submit, in accordance with the Commission's rules and regulations, Exhibit L drawings showing the final design of the arch dam, the spillway and the re-regulating dam, and licensee shall not begin construction of those structures until the Commission approves the exhibit.

"Article 31. The licensee shall within one year of the effective date of this license, file with the Commission Exhibits F and K in conformity with the Commission's rules and regulations.

"Article 32. The licensee shall submit for Commission approval detailed plans of fishery facilities described herein as part of the project and shall construct such facilities simultaneously with construction of the power facilities in such manner that populations of anadromous fish will be maintained during the construction period and thereafter.

"Article 33. In preparing plans and construction schedules for fishery facilities the licensee shall consult and cooperate with the U. S. Fish and Wildlife Service, Department of the Interior, and the Fish and Game Commissions of the State of Oregon.

"Article 34. The licensee shall negotiate with the Fish and Game Commissions of the State of Oregon with respect to the amount the licensee shall pay each year to defray operation and maintenance costs of the fishery facilities to be provided under this license. Should the licensee and the State agencies fail to agree on the amount to be paid by the licensee for such purposes, the Commission reserves the right to determine the amount of this annual payment after notice and opportunity for hearing.

"Article 35. The licensee shall destroy no more of the surface or vegetative cover of lands of the United States within the Central Oregon Land Utilization Project than is essential for the purposes of the licensed project and the licensee shall, to the satisfaction of the authorized representative of the Commission, take necessary measures to prevent excessive erosion upon such lands within the Utilization Project as are also included in the licensed project.

"(C) The exhibits designated and described in paragraph (2) above are approved as part of this license.

"(D) This order shall become final 30 days from the date of its issuance unless application for rehearing shall be filed within the 30-day period provided by Section 313(a) of the Act.

"(E) This license shall be accepted and returned to the Commission within 60 days from the date of issuance of this order."

The State proposes the following recommended order in lieu of that served.

[Title of Commission and Cause.]

ORDER DENYING APPLICATION FOR LICENSE (MAJOR)

Application was filed on May 23, 1949, by the Northwest Supply Company of Portland, Oregon, for a license under the Federal Power Act for a proposed hydroelectric development, designated as Project No. 2030, to be located on the Deschutes River in Jefferson County in Oregon, affecting lands of the United States and the Warm Springs Indian Reservation. [2485]

A public hearing on the aforementioned application was held in Portland, Oregon, commencing on June 11, 1951, before an Examiner of the Commission pursuant to the Commission's order issued May 1, 1951, and later amended, in which hearing all

parties, including the Applicant (Portland General Electric Company having been substituted for the original applicant for all practical purposes), and the Staff of the Commission, as well as two agencies of the State of Oregon, and the Oregon Division of the Izaac Walton League of America, Inc., participated and presented testimony and documentary exhibits. All persons desiring to speak either in favor of or in opposition to the issuance of a license for the proposed project were heard.

After the close of the hearing, briefs were filed by the various parties and by the Staff. A recommended decision was rendered by the Presiding Examiner containing findings and conclusions based upon the record developed before him. The Examiner recommended that the application for license be denied without prejudice for the reason that the proposed project, including the maps, plans, and specifications would not warrant judgment by the Commission that it would be best adapted to a comprehensive plan, as contemplated by Section 10(a) of the Act; that the applicant, under the provisions of Section 9(b) of the Act, has failed to show compliance with the laws of the State of Oregon; that the Commission lacks jurisdiction to issue an appropriate license authorizing the construction, operation and maintenance of the hydroelectric power project designated as Project No. 2030.

Upon consideration of the entire record in this matter, including the reports of the Federal agencies, protests from interested citizens, and the briefs of the parties filed in connection therewith, the Commission finds:

It is desirable and in the public interest for the Commission by order to adopt as its own Final Decision, the aforementioned Examiner's Recommended Decision in this matter.

The Commission orders:

(A) The aforementioned Recommended Decision of the Presiding Examiner in the above-entitled matter is hereby adopted as the Final Decision of the Commission, subject to the provisions of Section 313(a) of the Federal Power Act, which Decision is attached hereto and made a part hereof by reference. [2486]

(B) The aforesaid application of the Northwest Power Supply Company and Portland General Electric Company for license under the Federal Power Act for the construction, operation, and maintenance of hydroelectric project on the Deschutes River, Oregon, is hereby denied without prejudice, on the grounds and for the reasons set forth in the Decision referred to in (A) above.

All of which is respectfully submitted.

/s/ GEORGE NEUNER,
Attorney General,
State of Oregon.

/s/ ARTHUR G. HIGGS,
Assistant Attorney General,
State of Oregon. [2487]

MOTION OF THE STATE OF OREGON TO PRESENT ORAL ARGUMENT ON EXCEPTIONS TO RECOMMENDED DECISIONS

Now comes the State of Oregon, the Oregon Fish Commission and the Oregon State Game Commission, interveners in the above entitled cause by Arthur G. Higgs, Assistant Attorney General for the State of Oregon, one of its attorneys, and respectfully requests this honorable Commission that Counsel for the State be granted an opportunity to make oral argument before said Commission in support of the State of Oregon's exceptions to the findings and conclusions contained in the recommended decision in this case, and for grounds of such motion states that the questions of law raised in and by said exceptions to said findings and conclusions concerning the jurisdiction of the Federal Power Commission to issue a license for the construction, operation and maintenance of a hydroelectric power project on lands of the United States in a non-navigable stream have never been decided by the Commission or the courts of the United States; that a correct decision of these issues is of great importance to the Applicant, to the Commission and to the State of Oregon, Petitioner believes, under these circumstances, that oral argument will

be of great assistance to the Commission in deciding such issues.

Respectfully submitted

/s/ ARTHUR G. HIGGS,
Assistant Attorney General,
State of Oregon.

Certificate of Service attached.

F.P.C. Received Nov. 21, 1951. [2488]

United States of America
Federal Power Commission

Before Commissioners: Thomas C. Buchanan, Acting Chairman; Claude L. Draper, Nelson Lee Smith and Harrington Wimberly.

December 18, 1951

In the Matter of Portland General Electric Company, Project No. 2030.

ORDER DENYING MOTION FOR LEAVE TO PRESENT ORAL ARGUMENT

Pursuant to the provisions of Section 1.31 of the Commission's Rules of Practice and Procedure (18 CFR 1.31), the State of Oregon, the Oregon Fish Commission and the Oregon Game Commission, interveners, filed on November 21, 1951, their exceptions to the decision of the Presiding Examiner issued October 23, 1951, recommending that a license be granted under the Federal Power Act to Portland General Electric Company for Project No.

2030. In addition, the interveners filed a motion for leave to present oral argument before the Commission on the questions presented by their exceptions to the recommended decision.

The Commission finds:

The issues presented by the exceptions are not new or novel and have been fully briefed. Oral argument would serve no useful purpose and is unnecessary to a proper determination of the issues raised by the exceptions.

The Commission orders:

The motion of the State of Oregon, the Oregon Fish Commission and the Oregon Game Commission for leave to present oral argument be and the same is hereby denied.

By the Commission.

LEON M. FUQUAY,
Secretary.

Date of Issuance: December 21, 1951. [2490]

[Title of Commission and Cause.]

OPINION No. 222

Appearances: For Applicant, Portland General Electric Company (and Northwest Power Supply Company): Clarence D. Phillips, Esq. For Interveners, State of Oregon, Oregon Fish Commission and Oregon Game Commission: Arthur G. Higgs, Esq., Assistant Attorney General, State of Oregon.

For Intervener, Oregon Division of Izaak Walton League of America, Inc.: Rollin E. Bowles, Esq. For Tribal Council, Warm Springs Indian Reservation of Oregon: T. M. Brown, Esq. For the Staff of the Federal Power Commission: Willard W. Gatchell, Esq., John C. Mason, Esq. [2492]

By the Commission:

The Northwest Power Supply Company, of Portland, Oregon, on May 23, 1949, filed an application for license under Section 4 (e) of the Federal Power Act for authority to construct, operate and maintain a waterpower development on the Deschutes River in Jefferson County, Oregon, to be known as the Pelton project and designated as Project No. 2030. A supplemental application was filed on June 15, 1951, by the Northwest Power Supply Company and Portland General Electric Company, also of Portland, Oregon, requesting that the license be issued to Portland General Electric Company. In the circumstances, Portland General Electric Company is the applicant for license.

The proposed project, if constructed, would occupy lands and a reservation of the United States. Therefore, construction of the project without a license from this Commission would be unlawful.

The State of Oregon, through its Fish and Game Commissions, and the Oregon Division of the Izaak Walton League of America, Inc., were permitted to intervene in this proceeding. These interveners oppose construction of the Pelton project. They contend that the construction and operation of the project will eliminate or seriously curtail the present

populations of anadromous fish now utilizing the spawning areas upstream from the Pelton dam site. They also contend that construction of the project will seriously [2493] impair the productivity and usefulness of the States Metolius fish hatchery located on the Metolius River upstream from the project site. The State Fish and Game Commissions contend that when the Metolius hatchery is expanded as presently planned, the productivity of the Deschutes River system as a salmon stream will be greatly increased but that such an increase from hatchery operations and natural spawning will be impossible if the project is constructed.

In addition, the State agencies oppose the project on legal grounds. They argue that the application should be denied because the Hydroelectric Commission of Oregon and the Oregon Fish Commission have refused to issue permits or licenses required under existing State laws before the proposed project can be constructed. We note that there is no State law which would by its own terms prohibit construction of the project, although the two State Commissions have so far refused to issue the permits or licenses. It may be that they will reconsider and issue the State authorizations if a Federal license contains conditions to conserve and possibly enhance the fishery resources of the Deschutes River. Be that as it may, however, we are dealing here with the applicability of a Federal statute and it is clear that the State laws involved cannot stand as a complete legal bar to

Federal authorization of a project lacking a State permit if, in the judgment of the Commission, that project is best adapted to comprehensive plans and would be of unmistakable public benefit. We cannot, merely in reliance upon the preliminary refusal of the State Commissions to issue licenses or permits, avoid responsibility for considering the broader public interest questions before us under the Federal Power Act. [2494]

Since construction of the power dam will provide a block to the natural passage of anadromous fish runs, the applicant proposes, in order to conserve the fish, to construct certain facilities in accordance with a program suggested by the Oregon Fish Commission. These facilities may be described generally as: the re-regulating dam; facilities necessary to trap fish at that dam, to hold the trapped fish until they reach sexual maturity, to take eggs from the trapped fish, to haul eggs to the Metolius hatchery, and to haul fingerlings from the hatchery for release in the Deschutes River below the re-regulating dam or for release in other streams. The capital investment of the applicant in the re-regulating dam and in fishery conservation facilities will be at least $4,430,000 and the annual cost of money, depreciation and taxes on this capital investment would be $410,000, assuming retention of ownership by applicant of all facilities. The annual cost of operation and maintenance of the re-regulating dam will be $10,000. In addition, the applicant has offered to contribute $100,000 per year as its share of the operation and maintenance cost of the fishery conservation facilities, including

the operation and maintenance of the expanded Metolius hatchery.

The Oregon Fish Commission contends this operation and maintenance cost will be about $500,000 per year; the Examiner believes this cost might be about $375,000 per year; and for the purpose of economic analysis the staff estimates this cost to be about $255,000 annually. The record is not sufficient to determine at this time the amount the applicant should contribute each year toward operation and maintenance of the fishery conservation facilities and we will leave that matter for future determination. However, for purposes of an economic analysis of the proposed project we will accept the Examiner's figure of $375,000. Therefore, for the purpose of determining the economic feasibility of the project we find that the total annual cost to applicant of the fish conservation facilities will be $795,000.

There is no real controversy over the annual cost of the power to be generated by the project, or the losses associated with the project such as the annual loss of sports fishery in the area to be inundated. Likewise, there is no real controversy over the total annual values attributable to the project. From the evidence in the record relating to these matters we find, as did the Examiner, that the total annual values attributable to the project will exceed the total annual project costs and losses associated therewith by at least $351,000. Some additional irrigation diversions may be made in the future at points above the dam site, but until that

time the total annual values will exceed costs and losses by about $450,000.

The applicant's transmission system is already interconnected with other private and public-owned power systems operating in the Pacific Northwest power pool. Consequently, the addition of the three project generating units, having a dependable capacity of 108,000 kilowatts and a peaking capacity of 120,000 kilowatts, would be of benefit to all of the power consumers in the area and by virtue of its location, the Pelton project would improve the operation of the Bonneville power system. This project is of particular importance to the applicant since it is a large wholesale purchaser of electric power and a shortage of power in the area affects adversely its availability of power supply. [2496]

Since only two years would be required after authorization to put this plant into operation, this project is probably the most readily available source of new power supply in the Pacific Northwest. The severe power shortage in that region is a matter of national concern, particularly when every effort is being made to increase the industrial output of those materials calling for large blocks of low-cost power, and of course the principal increase in the power demands of the area has been due to the expanding defense requirements which must be met. Furthermore, the serious regional power shortage will not be met by the planned Federal power construction, but additional generating plants must be built as rapidly as possible, especially

where, as here proposed, the installation can be made with a minimum loss of time and with substantial assistance to other power suppliers.

Section 10 (a) of the Federal Power Act requires that licenses shall be issued only for those power projects which in the judgment of the Commission are best adapted to comprehensive plans for full development of those lands and streams subject to Federal jurisdiction. The engineering feasibility of realizing the anticipated power benefits from the Pelton project as proposed by the applicant has not been seriously questioned. The Federal Power Act, however, does not limit our consideration to the power phases of such proposals, but requires full consideration of all public benefits which may be secured by utilization of streams in their natural state or through improvements. The public interests of all parties which we must consider will, in our judgment, likewise benefit from the undertaking. [2497]

A bar to approval of the application suggested by the State Commissions, but rejected by the Examiner, is the Columbia River Review Report submitted in 1948 by the United States Army Corps of Engineers, and the lower Columbia Fisheries Plan prepared by the United States Fish and Wildlife Service in cooperation with the Fish and Game Commissions of the State of Washington, Oregon and Idaho. The Army report and the Fisheries Plan are presented here as a specific recommendation for indefinite postponement of any water-power

development on the Deschutes River because that river was included in the Fisheries Plan and because the Army engineers recommended that Congress give favorable consideration to that plan. But it should be noted that the Army review report contains no discussion of possible power development at or near the Pelton site, and consequently, the applicant's proposal is not contrary and inconsistent with any of the Army's recommendations for power development on the Deschutes River. While Congress has appropriated funds for the Fisheries Plan, Congress has not given its approval to that plan or to the basin plans of the Army Engineers. We find nothing in the Army report or he Fisheries Plan which would preclude the issuance of a license for the Pelton project if it is a desirable project in the public interest and meets the standards prescribed by the Federal Power Act.

This leaves for discussion the claims of the applicant and of the interveners with respect to the fishery resources of the Deschutes River upstream from the re-regulating dam, the effects reasonably to be anticipated from construction and operation of the project, and the economic and public benefits under natural conditions as compared with the stream improvements proposed by the applicant. [2498]

The Examiner finds and the record supports his finding that operation of the project in the manner proposed by applicant in conjunction with the re-

regulating dam would prevent the project from adversely affecting any interests downstream since substantially all the natural river flow will be released through that dam at all times.

The important anadromous fish inhabiting the Deschutes watershed are spring chinook salmon and summer steelhead trout. In addition there are resident trout which provide a substantial sports fishery, but there is no evidence to show any serious injury to the sports or recreational fishery. In any event any such injury would be offset to some extent, if not entirely, by the lake fishery and the recreational opportunities to be provided by the project reservoir.

The salmonoid fish perish after spawning while the summer steelhead trout may spawn as many as three times. The spring chinook and the steelhead each utilize spawning areas suitable to its ecological niche and each has well-defined migratory and spawning habits of its own. The anadromous fish use the fresh water of the Deschutes River for spawning purposes and early rearing of the young, the greater portion of their growth and life being associated with the sea.

The Deschutes River is not now, nor has it been in recent years, a particularly plentiful producer of salmon and steelhead trout. The Oregon Fish Commission estimates that the runs of spring chinook and salmon passing the Pelton site enroute upstream are in the general magnitude of 2,000 to 2,500 annually, and that approximately 5,000

summer steelhead move past the site. These estimates are not based on any count of the fish or of spawning nest, but are very rough at best being a matter of judgment based on observed [2499] factors in other streams. Consequently, they are probably subject to considerable error. On the basis of this escapement past the project site the Fish Commission estimates the annual value of the Deschutes salmon and steelhead fishery attributable to the river above the Pelton site to be $177,375.

The record shows, as found by the Examiner, that the Deschutes River above the Pelton site is not now a relatively large producer of anadromous fish and the likelihood of its becoming so in the near future is rather remote. Several explanations are given in the record for the sparsity of the anadromous fish populations but it is not necessary to decide the causes. However, irrigation diversions in the headwaters have almost completely depleted the upper reaches of the stream at points some distance above the Pelton site and also there is no evidence that the natural food present in the stream will support substantially more fingerlings than are now being produced in the Deschutes River system above the Pelton site.

After examining the record, we are in agreement with the Examiner that no substantial evidence has been brought forward to show that the facilities proposed for conserving the fish will not maintain existing runs. Moreover, there are indications that the runs can be increased.

Conclusion

From our analysis of the evidence in the record we have concluded that the proposed project is in the public interest and will provide for comprehensive development of the affected stretch of the Deschutes River and will be consistent with further comprehensive development of that stream and of the Columbia basin. The improvements proposed will contribute valuable [2500] public benefits which will not accrue if the river is maintained in its present natural condition. Therefore, we are issuing a license for the project properly conditioned to conserve and possibly enhance the fishery resources of the Deschutes River.

. . . . . .

Thomas C. Buchanan, Acting Chairman.

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Claude L. Draper, Commissioner.

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Nelson Lee Smith, Commissioner.

. . . . . .

Harrington Wimberly, Commissioner.

Dated at Washington, D. C., this eighteenth day of December, 1951.

. . . . . .

Leon M. Fuquay, Secretary.

Date of Issuance: December 21, 1951. [2501]

United States of America
Federal Power Commission

Before Commissioners: Thomas C. Buchanan, Acting Chairman; Claude L. Draper, Nelson Lee Smith and Harrington Wimberly.

December 18, 1951.

In the Matter of Portland General Electric Company, Project No. 2030.

ORDER ISSUING LICENSE (MAJOR)

Application was filed May 23, 1949, and later supplemented, by Northwest Power Supply Company, of Portland, Oregon, for a license under the Federal Power Act for a proposed hydroelectric development, known as the Pelton project, and designated as Project No. 2030, to be located on the Deschutes River in Jefferson County, Oregon. In a second supplementary application filed on June 15, 1951, by Northwest Power Supply Company and Portland General Electric Company, of Portland, Oregon, both companies agreed and requested that the license be issued to Portland General Electric Company as successor in interest to Northwest Power Supply Company, the original applicant.

A public hearing was held on the application in Portland, Oregon, commencing on June 11 1951, before an Examiner of the Commission, in which hearing all parties, including the applicant and the staff of the Commission, as well as the State of Oregon, the Oregon Fish Commission, the Ore-

gon Game Commission, and the Oregon Division of the Izaak Walton League of America, Inc., participated as interveners and presented testimony and documentary exhibits. In addition, all persons desiring to speak either in favor of or in opposition to the issuance of a license for the proposed project were heard. After the close of the hearing, briefs were filed by the various parties and by the staff, except the Izaak Walton League, and on October 22, 1951, a recommended decision was rendered by the Presiding Examiner containing findings and conclusions and a recommended order which, if adopted, would issue a license to Portland General Electric Company upon specified conditions.

The State of Oregon and the Oregon Fish and Game Commissions filed on November 21, 1951, their exceptions to the recommended decision of the Presiding Examiner and at the same time filed a motion requesting oral argument before the Commission on the questions presented by their exceptions to the recommended decision. That motion is being denied by separate order issued on this date.

For the reasons set forth in Opinion No. 222 adopted this date and made a part hereof by reference, and upon consideration of the entire [2502] record in this matter, including the reports of the Federal and State agencies, protests from interested citizens, the briefs of the parties, including staff counsel, filed in connection therewith, the Ex-

aminer's recommended decision and the exceptions filed to that decision, the Commission finds:

(1) Northwest Power Supply Company originally applied for license for the Pelton project on May 23, 1949. Subsequently, on June 15, 1951, Northwest Power Supply Company and Portland General Electric Company filed a supplement to the original application in which both agreed and requested that any license which might be issued, be issued to Portland General Electric Company as successor in interest to the original applicant. In the circumstances the Portland Company is the real party in interest, and any license issued should be issued to that Company.

(2) The project consists of:

(a) All lands constituting the project area and enclosed by the project boundary or the limits of which are otherwise defined, and/or interest in such lands necessary or appropriate for the purposes of the project, whether such lands or interest therein are owned or held by the applicant or by the United States; such project area and project boundary being more specifically shown and described by certain exhibits which formed part of the application for license and which are designed and described as follows:

Exhibit J—(Dwg. No. revised F95143) (PFC No. 2030-11) "Pelton Power Development General Map" signed Northwest Power Supply Co. by Thomas M. Robins, President, on April 6, 1951.

Exhibit K—(Dwg. No. revised F95144 (FPC No. 2030-12) entitled "Pelton Power Development De-

tail Map" signed Northwest Power Supply Co. by Thomas M. Robins, President, on April 6, 1951.

(b) Principal structures, comprising a concrete arch dam approximately 205 feet high; a reservoir with normal pool at elevation 1580 feet; a side channel and tunnel spillway; 3 short penstocks 16 feet in diameter; an outdoor type powerhouse located immediately downstream from the dam, containing three 52,000 horsepower turbines operating under a gross head of about 152 feet, connected to three 36,000 kilowatt generators; a switching station at the rim of the [2503] canyon; a 230 kilovolt transmission line extending about 7 miles eastward to connect to the existing Madras-Maupin line; a concrete gravity and earth re-regulating dam located about 3 miles downstream from the arch dam; a re-regulating reservoir with pond level at elevation 1,422 feet; and fish facilities consisting of an egg-taking station with holding ponds and adequate water supply at the site of the re-regulating dam, including a caretaker's cottage and other necessary buildings; fish traps in the re-regulating dam and an elevator or a fish ladder leading from the traps to the holding ponds; an expanded Metolius hatchery or a new hatchery wherever desired by the Fish Commission of Oregon; trucks for the transportation of eggs and fingerlings; and land necessary for fish facilities; and appurtenant facilities; the location, nature and character of which are more specifically shown and described by exhibits hereinbefore cited and by certain other ex-

hibits which also formed part of the application for license and which are designated as follows:

Exhibit L: Drawing in 5 sheets comprising:

Sheet 1—(Dwg. No. revised F97683) (FPC No. 2030-13) entitled "Pelton Power Development General Plan" signed Northwest Power Supply Co. by Thomas M. Robins, President, on April 6, 1951.

Sheet 2—(Dwg. No. revised F95135) (FPC No. 2030-14) entitled "Pelton Power Development Power House—Plans" signed Northwest Power Supply Co. by Thomas M. Robins, President, on April 6, 1951.

Sheet 3—(Dwg. No. revised F97685) (FPC No. 2030-15) entitled "Pelton Power Development Power House—Cross Section" signed Northwest Power Supply Co. by Thomas M. Robins, President, on April 6, 1951.

Sheet 8—(Dwg. No. revised F95142) (FPC No. 2030-19) entitled "Pelton Power Development One Line Diagram" signed Northwest Power Supply Co. by Thomas M. Robins, President, on April 6, 1951. [2504]

Sheet 9—(Dwg. No. F114009) (FPC No. 2030-21) entitled "Pelton Power Development Dam for Regulating Reservoir" signed Northwest Power Supply Co. by Thomas M. Robins, President, and Portland General Electric Company by James H. Polhemus, President, on June 8, 1951.

Exhibit M: A statement in three sheets entitled "General Description and Specifications of Equipment" signed Northwest Power Supply Co. by Thomas M. Robins, President, on April 6, 1951.

(c) All other structures, fixtures, equipment or facilities used or useful in the maintenance and operation of the project and located on the project area, including such portable property as may be used or useful in connection with the project or any part thereof, whether located on or off the project area, if and to the extent that the inclusion of such property as a part of the project is approved or acquiesced in by the Commission; also, all riparian or other rights, the use or possession of which is necessary or appropriate in the maintenance and operation of the project.

(3) Construction, operation, and maintenance of proposed Project No. 2030 would affect public lands and a reservation of the United States. Consequently, under the provisions of Section 23(b) of the Federal Power Act the applicant may not construct, operate or maintain the proposed project works upon those lands of the United States until it shall have received a license under the provisions of that Act.

(4) The refusal of the Oregon Fish Commission, acting under an existing law of the State of Oregon, to issue a permit for the Pelton project, is not a bar to the issuance of a Federal Power Act license and to the construction and operation of the proposed project under such license, if that project is found to meet the standards specified for comprehensive waterpower development in the Federal Power Act.

(5) The Deschutes River has not been established as a fish refuge by the State.

(6) The Pelton project as proposed by applicant will utilize the head and stream flow to the maximum economic extent for power purposes.

(7) The Pelton project as outlined in the plans would conform to sound engineering practice and be safe and adequate.

(8) The construction costs estimated by the applicant for the Pelton project, including those for fishery facilities, are reasonable.

(9) The annual cost at load center of the power output of the Pelton project plant is estimated at $2,085,000.

(10) The value at load center of the power output of the Pelton project plant is estimated at $3,435,000.

(11) Inasmuch as Portland General Electric Company had only 190,000 kilowatts of peaking capacity in its own generating plants, a considerable amount of power supply was purchased from others to meet its 1950 peak load of 472,000 kilowatts. Construction of the proposed project would reduce the purchases to the extent of the capability of the plant.

(12) During the five year period 1950-1955, the peak load for the system of Portland General Electric Company will increase by at least 183,000 kilowatts and the energy requirements during the same period will increase by at least 884,300,000 kilowatt-hours, and the load will continue to increase beyond 1955.

(13) The Pelton project would have an installed capacity of 108,000 kilowatts (156,000 horsepower)

and an estimated average annual output of 375,000,000 kilowatt-hours. The dependable capacity would be 108,000 kilowatts on the load of the Portland General Electric Company and all of the energy to be made available would be usable. The peaking capacity would be 120,000 kilowatts.

(14) The Pacific Northwest Region has been deficient in dependable capacity to supply the area loads from 1946 to 1951 and will continue to be deficient until 1956, even if all projects now under construction and proposed for construction are constructed and completed on time.

(15) The Pacific Northwest region probably will not have an ample amount of dependable power supply until 1959 or later.

(16) Due to the size of its proposed installation and its location, the Pelton project would be a valuable addition to the power supply of the Pacific Northwest.

(17) A power market will be available for the electric output of the Pelton project as soon as it can be placed in operation. [2506]

(18) Other hydroelectric sites available to applicant for development in lieu of the Pelton site are limited, more costly and smaller in productive capacity.

(19) New steam-electric generating stations, while alternative to the Pelton project as a new source of power supply, would be more costly and difficult to justify economically.

(20) The Portland General Electric Company does not have the preference given under law to

public bodies in the purchase of power from Bonneville Power Administration.

(21) New sources of dependable power supply through purchases from Bonneville Power Administration and other system are not now available and will not be available to Portland General Electric Company for several years.

(22) The fishery of the Deschutes River includes spring chinook salmon, some sockeye salmon, summer steelhead trout (the foregoing being anadromous) and resident trout.

(23) It was estimated that 2,500 spring chinook salmon and 5,000 summer steelhead trout pass the Pelton site on their way upstream, but these estimates are very rough and subject to considerable error.

(24) The record fails to show that the Deschutes River system above the Pelton site is capable under natural conditions of producing anadromous fish in substantially greater numbers than are now produced there.

(25) Although there is no commercial fishery on the Deschutes River, it contributes to the commercial fisheries of the Columbia River and the offshore trolling areas in the Pacific Ocean.

(26) There is an Indian subsistence fishery on the Deschutes River.

(27) The construction of the proposed dam at the Pelton site will provide a block to the natural passage of anadromous fish.

(28) The applicant proposes as part of the Pelton project to provide facilities for conserving the

runs of anadromous fish in accordance with plans proposed by the Fish Commission of the State of Oregon.

(29) There is nothing novel, unusual or out of the ordinary with respect to the fishery conservation facilities proposed by applicant. [2507]

(30) The applicant proposes to operate or arrange for the operation of the fish conservation facilities in accordance with approved methods.

(31) Construction, operation and maintenance of the Pelton project will not be detrimental to the fishery resources below the re-regulating dam.

(32) There is no substantial evidence in the record to show that the fishery facilities proposed by the applicant in accordance with the plans prepared by the Fish Commission of Oregon will not maintain existing runs, and there is a possibility that the runs can be increased.

(33) The capital cost of the facilities proposed by applicant for conserving the anadromous fish above Pelton dam site is estimated at $4,430,000, and such estimate is reasonable.

(34) The total annual cost of the applicant's fishery conservation program, including fixed charges on investment and for operation and maintenance, is estimated at $795,000, and such estimate is reasonable.

(35) The annual sports value of trout fishery that would be lost in the area to be flooded by the main and re-regulating dams has been estimated as being about $24,000.

(36) The annual value of present anadromous

fish produced above Pelton dam site has been estimated by the Oregon Fish Commission as being approximately $177,375, which estimate apparently includes about $15,600 attributable to recreational value resulting from sports fishery.

(37) The main reservoir, with elevation 150 feet above the present water elevation, would be more accessible to the public for recreational use, particularly upon completion of a contemplated State highway, and will offer recreational opportunities to people from local and distant areas.

(38) There will be some benefit to the public by reason of the recreation to be provided by the Pelton dam reservoir, but it is not possible to assign a prospective monetary value thereto with any degree of accuracy.

(39) The total of annual costs and losses attributable to the Pelton project, if constructed, has been estimated to be about $3,099,000. [2508]

(40) The total of annual values attributable to the Pelton project has been estimated to be about $3,450,000. This figure contains an unsupported estimate for the recreation value of the reservoir which will not accrue to the benefit of the applicant.

(41) The total of annual values attributable to the Pelton project exceed the total of annual costs and losses associated therewith by about $351,000.

(42) The Pelton project as proposed by the applicant can be financed, and there is nothing substantial in the record to cast doubt upon its economic feasibility.

(43) Based on cost data in the record and on estimates made to approximate other costs, the Pelton project is financially and economically feasible.

(44) Under present circumstances and conditions, and upon the terms and conditions hereinafter provided in the license, the project is best adapted to a comprehensive plan for the improvement and utilization of water-power development, for the conservation and preservation of the fish and wildlife resources, and for other beneficial public uses including recreational purposes.

(45) The Portland General Electric Company is a corporation organized under the laws of the State of Oregon and has submitted satisfactory evidence of compliance with the requirements of all applicable State laws insofar as necessary to effect the purposes of a license for the project.

(46) No conflicting application is before the Commission. Public notice has been given as required by the Act.

(47) The project does not affect any Government dam, nor will the issuance of a license therefor, as hereinafter provided, affect the development of any water resources for public purposes which should be undertaken by the United States itself.

(48) The Secretary of Agriculture, who has supervision over the Central Oregon Land Utilization Project, has reported favorably upon the application and requested inclusion in the license of a special condition which is hereinafter provided.

(49) The Secretary of the Interior has recom-

mended that the license be denied because the Lower Columbia Fisheries program contemplates greater use of the Deschutes as a fish propagation stream, but requests that, if a license is issued, a special condition be included with respect to certain water rights. The requested condition, with slight modifications, is hereinafter provided. [2509]

(50) The issuance of a license for the project as hereinafter provided will not interfere or be inconsistent with the purposes for which any reservation or withdrawal of public lands were created or acquired.

(51) The installed horsepower capacity of the project hereinafter authorized is 156,000 horsepower.

(52) The amount of annual charges to be paid under the license for the purpose of reimbursing the United States for the costs of administration of Part I of the Act is reasonable as hereinafter fixed and specified, and the amount of annual charges to be paid under the license for the purpose of recompensing the United States for the use, occupancy and enjoyment of its lands, including transmission line right-of-way, and for the purpose of recompensing the Indians for the use, occupancy and enjoyment of tribal lands within the Warm Springs Indian Reservation, should be later determined.

(53) In accordance with Section 10(d) of the Act, the rate of return upon the net investment in the project and the proportion of surplus earn-

ings to be paid into and held in amortization reserves are reasonable as hereinafter specified.

(54) The exhibits specified in paragraph (2), filed as a part of the application as supplemented, conform to the Commission's rules and regulations, and should be approved as a part of the license for the project.

(55) The applicant has not submitted Exhibit L drawings showing the final design of the arch dam, the spillway and the re-regulating dam. Such drawings, in conformity with the Commission's rules and regulations, should be filed with and approved by the Commission before construction of those structures is commenced.

(56) The applicant should file, within one year of the effective date of the license, Exhibits F and K in conformity with the Commission's rules and regulations.

The Commission orders:

(A) This license is issued to Portland General Electric Company under Section 4(e) of the Federal Power Act (hereinafter referred to as the Act) for a period of 50 years, effective as of the first day of the month in which acceptance hereof is filed with the Commission by the licensee, for the construction, operation, and maintenance of Project No. 2030 upon public lands of the United States and upon tribal lands within the Warm Springs Indian Reservation, subject to the terms and [2510] conditions of the Act which is incorporated by reference as a part of this license, and subject to such rules and regulations as the Com-

mission has issued or prescribed under the provisions of the Act.

(B) This license is also subject to the terms and conditions set forth in Form L-2, entitled "Terms and Conditions of License for Unconstructed Major Project Affecting Lands of the United States," which terms and conditions are attached hereto and made a part hereof; and subject to the following special conditions set forth herein as additional articles:

Article 25. The Licensee shall pay to the United States the folowing annual charges:

(i) For the purpose of reimbursing it for the costs of administration of Part I of the Act, one (1) cent per horsepower on the authorized installed capacity (156,000 horsepower), plus two and one-half (2½) cents per 1,000 kilowatt-hours of gross energy generated by the project during the calendar year for which the charge is made;

(ii) For the purpose of recompensing the United States for the use, occupancy, and enjoyment of its lands, including transmission-line right-of-way, such reasonable charges as may be hereafter specified by the Commission; and

(iii) For the use of tribal lands embraced within the Warm Springs Indian Reservation, such reasonable charge (which may include electric service) as may hereafter be specified by the Commission, subject to the approval of the Indian tribe having jurisdiction over such lands as provided by law.

Article 26. The Commission reserves the right, after notice and opportunity for hearing, to adjust

the normal reservoir elevation of the Pelton project at such time as the proposed Metolius project located upstream is constructed to make the most economical use of water resources of the Deschutes River and its tributaries.

Article 27. The Licensee shall construct, maintain and operate or shall arrange for the construction, maintenance and operation of such fish ladders, fish traps or other fish handling facilities or fish protective devices [2511] and provide fish hatchery facilities for the purpos of conserving the fishery resources above the Pelton site and comply with such reasonable modifications of the project structures and operation in the interest of fish life as may be prescribed hereafter by the Commission upon its own motion or upon the recommendations of the Secretary of the Interior and the Fish and Game Commissions of the State of Oregon.

Article 28. Any rights to the use of waters in the Deschutes River and its tributaries in connection with the Licensee's project under this license shall be subordinate to:

(i) All existing rights, whether or not perfected, to the waters of the Deschutes River and its tributaries for domestic, stock, municipal and irrigation purposes, including the right to store any such waters in the proposed Benham Falls, Post and Prineville reservoirs and in the existing Crane Prairie, Crescent Lake, and Wickiup reservoirs; and

(ii) The use of additional flows of the Deschutes River and its tributaries pursuant to rights which

may be initiated hereafter for the diversion and storage of waters for domestic, municipal, stock, and irrigation purposes in connection with any reclamation projects undertaken pursuant to the Federal Reclamation Laws (Act of June 17, 1902, 32 Stat. 388, and acts amendatory thereof or supplementary thereto), the amounts of water to be used under the additional rights, together with the uses under existing rights whatever they may be, not, by reason of the additional right, to exceed these quantities:

(a) Deschutes River and its tributaries above Cline Falls—entire flow;

(b) Squaw Creek—all flows during the non-irrigation season;

(c) Lake Creek—20,000 acre-feet annually;

(d) Crooked River and its tributaries—all the flows above the Highway Bridge at the place where U. S. Highway 97 crosses the Crooked River canyon; [2512]

(e) Crooked River below the Highway Bridge —not to exceed 2,500 acre-feet annually for the proposed Deschutes project domestic water system; and

(f) An additional 400 second-feet that may be taken above the Licensee's project either from the Deschutes River below Cline Falls or the Crooked River below the Highway Bridge during the irrigation season.

Article 29. The Licensee shall commence construction of the project within one year of the effective date of the license; shall thereafter, in good faith and with due diligence, prosecute such

construction; and shall complete the project works in 24 months.

Article 30. The Licensee shall submit, in accordance with the Commission's rules and regulations, Exhibit L drawings showing the final design of the arch dam, the spillway and the re-regulating dam, and Licensee shall not begin construction of those structures until the Commission approves the exhibit.

Article 31. The Licensee shall within one year of the effective date of this license, file with the Commission Exhibits F and K in conformity with the Commission's rules and regulations.

Article 32. The Licensee shall submit for Commission approval detailed plans of fishery facilities described herein as part of the project and shall construct such facilities simultaneously with the construction of the power facilities in such manner that populations of anadromous fish will be maintained during the construction period and thereafter.

Article 33. In preparing plans and construction schedules for fishery facilities the Licensee shall consult and cooperate with the U. S. Fish and Wildlife Service, Department of the Interior, and the Fish and Game Commissions of the State of Oregon.

Article 34. The Licensee shall negotiate with the Fish and Game Commissions of the State of Oregon with respect to the amount the Licensee shall pay each year to defray a reasonable portion of the operation and maintenance costs of the fishery facili-

ties to be provided under this [2513] license. Should the Licensee and the State agencies fail to agree on the amount to be paid by the Licensee for such purposes, the Commission reserves the right to determine the amount of this annual payment after notice and opportunity for hearing.

Article 35. The Licensee shall destroy no more of the surface or vegetative cover of lands of the United States within the Central Oregon Land Utilization Project than is essential for the purposes of the licensed project; the Licensee shall, to the satisfaction of the authorized representative of the Commission, take necessary measures to prevent excessive erosion upon such lands within the Utilization Project as are also included in the licensed project.

(C) The exhibits designated and described in paragraph (2) above are approved as part of this license.

(D) This order shall become final 30 days from the date of its issuance unless application for rehearing shall be filed within the 30-day period provided by Section 313(a) of the Act.

(E) This license shall be accepted and returned to the Commission within 60 days from the date of issuance of this order.

By the Commission.

[Seal] /s/ LEON M. FUQUAY,
Secretary.

Date of Issuance: December 21, 1951. [2514]

In Testimony of Acceptance of all the provisions, terms, and conditions of this license, Portland General Electric Company, this ..... day of ....., 19.., has caused its corporate name to be signed hereto by ....., its ..... President, and its corporate seal to be affixed hereto and attested by ..... its ..... Secretary, pursuant to a resolution of its Board of Directors duly adopted on the ..... day of ....., 19.., a certified copy of the record of which is attached hereto.

PORTLAND GENERAL ELECTRIC COMPANY,

By.....
President.

Attest:

.....
Secretary.

(Executed in quadruplicate) [2515]

[Title of Commission and Cause.]

APPLICATION FOR REHEARING OF THE STATE OF OREGON, THE OREGON FISH COMMISSION AND THE OREGON STATE GAME COMMISSION, INTERVENERS, TO THE FINAL DECISION AND ORDER OF THE COMMISSION

May It Please the Commission:

Now comes the State of Oregon, the Oregon Fish Commission and the Oregon State Game Commission, Interveners herein, by George Neuner,

Attorney General, E. G. Foxley, Deputy Attorney General, and Arthur G. Higgs, Assistant Attorney General, their attorneys, and respectfully petition this honorable Commission for a rehearing in this proceeding wherein the Commission on the 21st day of December, 1951, issued its final decision and order issuing a license (major) to the Portland General Electric Company, applicant herein.

The grounds relied on by the petitioners for rehearing are as follows:

I.

1. The Commission in the Opinion Erred in Holding:

"The proposed project, if constructed, would occupy lands and a reservation of the United States. Therefore, construction of the project without a license from this Commission would be unlawful." [2517]

Authorities Relied On:

A. In the event that any person desires to construct a dam in any of the streams of this state to a height that will make a fish ladder or fishway thereover impracticable, in the opinion of the commission, then such person may make an application to the commission for a permit to construct such dam, and the commission is hereby authorized to grant such permit in its discretion, upon the condition that the person so applying for such permit shall convey to the state of Oregon a site of the size and dimensions satisfactory to the commission, at such place as may be selected by the commission, and erect thereon a hatchery

and hatchery residence, according to plans and specifications to be furnished by the commission, and enter into an agreement with the commission, secured by a good and sufficient bond, to furnish all water and light without expense, to operate said proposed hatchery; and no permit for the construction of any such dam shall be given by the commission until the person applying for such permit shall have actually conveyed said land to the state and erected said hatchery and hatchery residence in accordance with said plans and specifications.

Ch. 105, sec. 49, Oregon Laws 1921; O. C. L. A., sec. 83-316.

B. The common-law doctrine of riparian rights has been virtually abrogated in Oregon and for practical purposes appears to be no longer more than a legal fiction.

California-Oregon Power Co. vs. Beaver Portland Cement Co., 295 U. S. 142. [2518]

C. All waters within the state (Oregon) from all sources of water supply belong to the public.

O. C. L. A., sec. 116-401.

D. The above section and section 116-403, O. C. L. A., abolish the rule that a riparian owner has the right to have a stream continue to flow substantially undiminished in its natural channel.

California-Oregon Power Co. vs. Beaver Portland Cement Co., 73 Fed. 2nd 555.

E. The common-law rule as to "continuous flow" of a stream, or riparian doctrine, may be changed

by statute except as such change may affect some vested right.

Re: Water Rights of Hood River, 114 Or. 112, 227 p. 1065.

F. The rights, title and interest in and to all water for the development of waterpower and to waterpower sites, which the state of Oregon now owns or may hereafter acquire, shall be held in perpetuity.

Article 11-D, sec. 1, Constitution of Oregon, 1859.

G. The Desert Land Act (Act of Congress, March 3, 1877, amended 43, U. S. C. A. 321) had the effect to sever all waters upon the public domain, not theretofore appropriated, from the land itself.

California-Oregon Power Co. vs. Beaver Portland Cement Co. Brush vs. Commissioners of Internal Revenue 300 U. S. 352. [2519]

H. The waters of the state of Oregon may not be appropriated without its consent.

Sec. 116-401 et seq. (Oregon water code O. C. L. A.)

2. and 3. The Commission in the Opinion Erred in Holding:

" * * * that there is no State law which would by its own terms prohibit construction of the project, although the two State Commissions have so far refused to issue the permits or licenses." And, " * * * it is clear that the State laws involved cannot stand as a complete legal bar to

Federal authorization of a project lacking a State permit if, in the judgment of the Commission, that project is best adapted to comprehensive plans and would be of unmistakable public benefit."

Authorities Relied On:

A. First Iowa Hydro-electric Cooperative vs. Federal Power Commission, 328 U. S. 152.

Sec. 9(b), Federal Power Act.

B. Chapter 105, sec. 49, Oregon Laws 1921; O. C. L. A., sec. 83-316.

C. The power to legislate on the question of the acquisition and control of water rights has never been delegated to the United States and hence such power properly belongs to the individual states.

Kansas vs. Colorado, 206 U. S. 46, 94. Fox vs. Ickes, 137 Fed. 2nd 30.

D. From and after the date when this act takes effect no right to appropriate or to use the waters of the lakes, rivers, streams or [2520] other bodies of water within the state of Oregon, including water over which this state has concurrent jurisdiction, in connection with the development of any water-power project for the generation of electricity, shall be initiated, perfected, acquired or held, except for and during the period or periods or extensions thereof as herein stated, and pursuant to the provisions hereof. (L. 1931, ch. 67, sec. 2, p. 82; O. C. 1935 Supp., sec. 47-2102.)

Sec. 119-102, O. C. L. A.

E. From and after the taking effect of this act, no water-power project involving the use of the waters of any of the lakes, rivers, streams or other bodies of water within the state of Oregon, including waters over which this state has concurrent jurisdiction, for the generation of electricity, shall be begun or constructed except in conformity with the provisions hereof. (L. 1931, ch. 67, sec. 3, p. 83; O. C. 1935 Supp., sec. 47-2103.)

Sec. 119-103, O. C. L. A.

4. The Commission in the Order Erred in Finding:

(Page 4) "(e) All other structures, fixtures, equipment or facilities used or useful in the maintenance and operation of the project and located on the project area, including such portable property as may be used or useful in connection with the project or any part thereof, whether located on or off the project area, if and to the extent that the inclusion of such property as a part of the project is approved or acquiesced in by the Commission; also, all [2521] riparian or other rights, the use or possession of which is necessary or appropriate in the maintenance and operation of the project."

Authorities Relied On:

A. The Federal Power Commission may not act as a substitute for the local authorities having jurisdiction over such questions as the sufficiency

of applicant's legal title to riparian rights or the validity of its local franchise.

First Iowa Hydro-electric Cooperative vs. Federal Power Commission, 328 U. S. 152, 178.

B. The reference in Section 9(b) of the Federal Power Act to beds and banks of streams, to proprietary rights to divert or use water, or to legal rights to engage locally in the business of developing, transmitting and distributing power neither adds anything to nor detracts anything from the force of local laws.

First Iowa Hydro-electric Cooperative vs. Federal Power Commission, 328 U. S. 152, 178.

C. The common-law doctrine of riparian rights has been virtually abrogated in Oregon and for practical purposes appears to be no longer more than a legal fiction.

California-Oregon Power Co. vs. Beaver Portland Cement Co., 295 U. S. 142.

D. All waters within the state (Oregon) from all sources of water supply belong to the public.

O. C. L. A., sec. 116-401. [2522]

E. The above section and section 116-403, O. C. L. A., abolish the rule that a riparian owner has the right to have a stream continue to flow substantially undiminished in its natural channel.

California-Oregon Power Co. vs. Beaver Portland Cement Co., 73 Fed. 2nd 555.

F. The common-law rule as to "continuous flow" of a stream, or riparian doctrine, may be changed

by statute except as such change may affect some vested right.

Re: Water Rights of Hood River
114 Or. 112, 227 p. 1065.

G. The rights, title and interest in and to all water for the development of water-power and to water-power sites, which the state of Oregon now owns or may hereafter acquire, shall be held in perpetuity.

Article 11-D, sec. 1, Constitution or Oregon, 1859.

H. The Desert Land Act (Act of Congress, March 3, 1877, amended 43, U. S. C. A. 321) had the effect to sever all waters upon the public domain, not theretofore appropriated, from the land itself.

California-Oregon Power Co. vs. Beaver Portland Cement Co. Brush vs. Commissioners of Internal Revenue 300 U. S. 352.

I. All waters within the state (Oregon) from all sources of water supply belong to the public.

O. C. L. A., sec. 116-401. [2523]

5. The Commission in the Order Erred in Finding:

(Page 4): "(3) Construction, operation, and maintenance of proposed Project No. 2030 would affect public lands and a reservation of the United States. Consequently, under the provisions of Section 23(b) of the Federal Power Act the applicant may not construct, operate or maintain the pro-

posed project works upon those lands of the United States until it shall have received a license under the provisions of that act."

Authorities Relied On:

A. There is no provision in the federal constitution delegating to the central government power to control the acquisition and use of nonnavigable streams.

Kansas vs. Colorado, 206 U. S. 46. Ashwater vs. Tennessee Valley Authority, 297 U. S. 288, 338.

B. The Federal government irrevocably and unconditionally surrendered or relinquished to the states whatever rights the government may have had to control the use of the waters of nonnavigable streams in the West under the Desert Land Acts.

14 Stat. 251;
16 Stat. 217;
(Title 43, sec. 661, U. S. Code);
19 Stat. 377, sec. 2 and 3;
Jennison vs. Kirk, 98 U. S. 453;
California-Oregon Power Co. vs. Beaver Portland Cement Co., 295 U. S. 142.
Atchinson vs. Peterson, 20 Wall. 507;
Basey vs. Gallagher, 20 Wall. 670,683,684;
United States vs. Rio Grande D. & I. Company, 174 U. S. 690, 706;
Gutierres vs. Albuquerque Land & Irrigation Co., 188 U. S. 545, 553. [2524]

C. The Federal government, as owner of the public domain, had the power to dispose of the land and water composing it together or separately; and by the Desert Land Act of 1877 (c. 107, 19 Stat. 377), if not before, Congress had severed the land and waters constituting the public domain and established the rule that for the future the lands should be patented separately. Acquisition of the government title to a parcel of land was not to carry with it a water right; but all nonnavigable waters were reserved for the use of the public under the laws of the various arid-land states.

Ickes vs. Fox, 300 U. S. 82, 95, 57, S. Ct. 412.

6. The Commission in the Order Erred in Finding:

(Page 4) "(4) The refusal of the Oregon Fish Commission, acting under an existing law of the State of Oregon, to issue a permit for the Pelton project, is not a bar to the issuance of a Federal Power Act license and to the construction and operation of the proposed project under such license, if that project is found to meet the standards specified for comprehensive waterpower development in the Federal Power Act."

Authorities Relied On:

See 9(b), Federal Power Act.

First Iowa Hydro-electric Cooperative vs. Federal Power Commission, 328 U. S. 152.

Ch. 105, sec. 49, Oregon Laws 1921; O. C. L. A., sec. 83-316.

Sec. 116-401 et seq., O. C. L. A.

Ch. 67, sec. 2, Oregon Laws 1931.

Sec. 119-102, O. C. L. A. [2525]

7. The Commission in the Order Erred in Finding:

(Page 11) "Article 28. Any rights to the use of waters in the Deschutes River and its tributaries in connection with the Licensee's project under this license shall be subordinate to:

"(i) All existing rights, whether or not perfected, to the waters of the Deschutes River and its tributaries for domestic, stock, municipal and irrigation purposes, including the right to store any such waters in the proposed Benham Falls, Post and Prineville reservoirs and in the existing Crane Prairie, Crescent Lake, and Wickiup reservoirs; and

(ii) The use of additional flows of the Deschutes River and its tributaries pursuant to rights which may be initiated hereafter for the diversion and storage of waters for domestic, municipal, stock and irrigation purposes in connection with any reclamation projects undertaken pursuant to the Federal Reclamation Laws (Act of June 17, 1902, 32 Stat. 388, and acts amendatory thereof or supplementary thereto), the amounts of water to be used under the additional rights, together with the uses under existing rights whatever they may

be, not, by reason of the additional right, to exceed these quantities: [2526]

"(a) Deschutes River and its tributaries above Cline Falls—entire flow;

"(b) Squaw Creek—all flows during the non-irrigation season;

"(c) Lake Creek—20,000 acre-feet annually;

"(d) Crooked River and its tributaries—all the flows above the Highway Bridge at the place where U. S. Highway 97 crosses the Crooked River Canyon;

"(e) Crooked River below the Highway Bridge —not to exceed 2,500 acre-feet annually for the proposed Deschutes project domestic water system; and

"(f) An additional 400 second-feet that may be taken above the Licensee's project either from the Deschutes River below Cline Falls or the Crooked River below the Highway Bridge during the irrigation season."

Authorities Relied On:

A. The Federal Power Commission has no authority to allocate the use of the waters of the Deschutes River and its tributaries in connection with the Pelton Project under the proposed license. [2527]

B. All waters within the state (Oregon) from all sources of water supply belong to the public.

O. C. L. A., sec. 116-401.

C. The above section and section 116-403, O. C.

L. A., abolish the rule that a riparian owner has the right to have a stream continue to flow substantially undiminished in its natural channel.

California-Oregon Power Co. vs. Beaver Portland Cement Co., 73 Fed. 2nd 555.

D. The rights, title and interest in and to all water for the development of water-power and to water-power sites, which the state of Oregon now owns or may hereafter acquire, shall be held in perpetuity.

Article 11-D, sec. 1, Constitution of Oregon, 1859.

E. The Desert Land Act (Act of Congress, March 3, 1877, amended 43, U. S. C. A. 321) had the effect to sever all waters upon the public domain, not theretofore appropriated, from the land itself.

California-Oregon Power Co. vs. Beaver Portland Cement Co. Brush vs. Commissioners of Internal Revenue 300 U. S. 352.

F. The waters of the state of Oregon may not be appropriated without its consent.

Sec. 116-401 et seq. (Oregon water code O. C. L. A. [2528]

G. From and after the date when this act takes effect no right to appropriate or to use the waters of the lakes, rivers, streams or other bodies of water within the state of Oregon, including water over which this state has concurrent jurisdiction, in connection with the development of any water-

power project for the generation of electricity, shall be initiated, perfected, acquired or held, except for and during the period or periods or extensions thereof as herein stated, and pursuant to the provisions hereof. (L. 1931, ch. 67, sec. 2, p. 82; O. C. 1935 Supp., sec. 47-2102.)

Sec. 119-102, O. C. L. A.

H. From and after the taking effect of this act, no water-power project involving the use of the waters of any of the lakes, rivers, streams or other bodies of water within the state of Oregon, including waters over which this state has concurrent jurisdiction, for the generation of electricity, shall be begun or constructed except in conformity with the provisions hereof. (L. 1931, ch. 67, sec. 3, p. 83; O. C. 1935 Supp., sec. 47-2103.)

Sec. 119-103, O. C. L. A.

I. The Federal Power Commission may not act as a substitute for the local authorities having jurisdiction over such questions as the sufficiency of applicant's legal title to riparian rights or the validity of its local franchise.

First Iowa Hydro-electric Cooperative vs. Federal Power Commission, 328 U. S. 152, 178. [2529]

J. The reference in Section 9(b) of the Federal Power Act to beds and banks of streams, to proprietary rights to divert or use water, or to legal rights to engage locally in the business of developing, transmitting and distributing power

neither adds anything to nor detracts anything from the force of local laws.

First Iowa Hydro-electric Cooperative vs. Federal Power Commission, 328 U. S. 152, 178.

II.

The Following Findings of Fact Made by the Commission in the Opinion Are Not Supported by Substantial Evidence:

1. (Page 4) "Therefore, for the purpose of determining the economic feasibility of the project we find that the total annual cost to applicant of the fish conservation facilities will be $795,000."

2. (Page 4) " * * * that the total annual values attributable to the project will exceed the total annual project costs and losses associated therewith by at least $351,000. Some additional irrigation diversions may be made in the future at points above the dam site, but until that time the total annual values will exceed costs and losses by about $450,000."

3. (Page 5) "Furthermore, the serious regional power shortage will not be met by the planned Federal power construction, but additional generating plants must be built as rapidly as possible, especially where, as here proposed, the installation can be made [2530] with a minimum loss of time and with substantial assistance to other power suppliers."

4. (Page 6) "We find nothing in the Army report or the Fisheries Plan which would preclude the issuance of a license for the Pelton project if it is

a desirable project in the public interest and meets the standards prescribed by the Federal Power Act."

5. (Page 7) "* * * but there is no evidence to show any serious injury to the sports or recreational fishery. In any event any such injury would be offset to some extent, if not entirely, by the lake fishery and the recreational opportunities to be provided by the project reservoir."

6. (Page 7) "The Deschutes River is not now, nor has it been in recent years, a particularly plentiful producer of salmon and steelhead trout."

7. (Page 8) "The record shows, as found by the Examiner, that the Deschutes River above the Pelton site is not now a relatively large producer of anadromous fish and the likelihood of its becoming so in the near future is rather remote."

8. (Page 8) "After examining the record, we are in agreement with the Examiner that no substantial evidence has been brought forward to show that the facilities proposed for conserving the fish will not maintain existing runs. Moreover, there are indications that the runs can be increased." [2531]

The following findings of fact made by the Commission in the order issuing license are not supported by substantial evidence:

1. (Page 5) "(12) During the five year period 1950-1955, the peak load for the system of Portland General Electric Company will increase by at least 183,000 kilowatts and the energy requirements during the same period will increase by at least 884,-

300,000 kilowatt-hours, and the load will continue to increase beyond 1955."

2. (Page 5) "(14) The Pacific Northwest Region has been deficient in dependable capacity to supply the area loads from 1946 to 1951 and will continue to be deficient until 1956, even if all projects now under construction and proposed for construction are constructed and completed on time."

3. (Page 6) "(18) Other hydroelectric sites available to applicant for development in lieu of the Pelton site are limited, more costly and smaller in productive capacity."

4. (Page 6) "(24) The record fails to show that the Deschutes River system above the Pelton site is capable under natural conditions of producing anadromous fish in substantially greater numbers than are now produced there."

5. (Page 6) "(29) There is nothing novel, unusual or out of the ordinary with respect to the fishery conservation facilities proposed by applicant."

6. (Page 7) "(30) The applicant proposes to operate or arrange for the operation of the fish conservation facilities in accordance with approved methods."

7. (Page 7) "(31) Construction, operation and maintenance of the Pelton project will not be detrimental to the fishery resources below the re-regulating dam."

8. (Page 7) "(32) There is no substantial evidence in the record to show that the fishery facilities proposed by the applicant in accordance with the plans prepared by the Fish Commission of

Oregon will not maintain existing runs, and there is a possibility that the runs can be increased."

9. (Page 7) "(37) The main reservoir, with elevation 150 feet above the present water elevation, would be more accessible to the public for recreational use, particularly upon completion of a contemplated State highway, and will offer recreational opportunities to people from local and distant areas."

10. (Page 8) "(45) The Portland General Electric Company is a corporation organized under the laws of the State of Oregon and has submitted satisfactory evidence of compliance with the requirements of all applicable State laws insofar as necessary to effect the purposes of a license for the project." [2533]

For all of which reasons petitioners pray that said opinion and order issuing license to the applicant, Portland General Electric Company, be vacated, reversed and set aside.

Respectfully submitted,

/s/ GEORGE NEUNER,
Attorney General, State of Oregon,

/s/ E. G. FOXLEY,
Deputy Attorney General, State of Oregon,

/s/ ARTHUR G. HIGGS,
Assistant Attorney General, State of Oregon,
Attorneys for Interveners. [2534]

Verification

United States of America,
State of Oregon,
County of Multnomah—ss.

Arthur G. Higgs, being first duly sworn upon his oath deposes and says that he is an Assistant Attorney General for the State of Oregon, one of the attorneys for the State of Oregon, the Oregon Fish Commission and the Oregon State Game Commission, interveners herein; that he prepared said application for rehearing and knows the contents thereof and that the same is true as he verily believes.

/s/ ARTHUR G. HIGGS,
Affiant.

Subscribed and sworn to by the said Arthur G. Higgs before me, a notary public for the State of Oregon, this fourteenth day of January, 1952.

/s/ SUSANNE DAVIS,
Notary Public for the State of Oregon. My Commission expires March 10, 1952.

Certificate of Service

I hereby certify that I have this day served the foregoing document on the parties of record in this proceeding by mailing a copy thereof, properly addressed, to the following persons:

John C. Mason, Attorney for Federal Power Commission, Washington 25, D. C.

T. M. Brown, Attorney for Tribal Council, Warm Springs Indian Reservation, The Dalles, Oregon.

Rollin E. Bowles, Attorney for Izaak Walton League, 201 Weatherly Building, Portland, Oregon.

Clarence D. Phillips, Attorney for Portland General Electric Company et al., Applicants, 807 Electric Building, Portland, Oregon.

Dated at Portland, Oregon, this eighteenth day of January, 1952.

/s/ ARTHUR G. HIGGS,
Of Counsel for State of Oregon et al. [2536]

F.P.C. Received Jan. 21, 1952. [2535]

[Title of Commission and Cause.]

MAJOR LICENSE EFFECTIVE 1/1/52

[Printer's Note: The attached Opinion is a duplicate of Opinion 222 set out in full at pages 417 to 427 of this printed Record.]

CERTIFIED RESOLUTION OF BOARD OF DIRECTORS OF PORTLAND GENERAL ELECTRIC COMPANY ADOPTED AT MEETING HELD JANUARY 22, 1952.

Whereas, the Federal Power Commission of the United States rendered its opinion No. 222 in the matter of Portland General Electric Company, Project No. 2030, commonly known as the Pelton Project on December 18, 1951, and thereafter on December 21, 1951, issued an order in said Project No. 2030, authorizing a major license for the con-

struction and operation of the Pelton Project on the Deschutes River in Jefferson County, Oregon, and among other things provided that said license shall be accepted and returned to the Commission within sixty days from the issuance of said order.

Now, Therefore, Be It Resolved that the said license issued by the Federal Power Commission, including all the provisions, terms and conditions thereof, be and the same hereby is accepted and the executive officers of this corporation be and they hereby are authorized to make, execute and deliver to the Federal Power Commission an acceptance as follows:

"In Testimony of Acceptance of all the provisions, terms, and conditions of this license, Portland General Electric Company, this twenty-second day of January, 1952, has caused its corporate name to be signed hereto by Waldemar Seton, its Vice President, and its corporate seal to be affixed hereto and attested by Clarence D. Phillips, its Secretary, pursuant to a resolution of its Board of Directors duly adopted on the twenty-second day of January, 1952, a certified copy of the record of which is attached hereto.

PORTLAND GENERAL
ELECTRIC COMPANY,
By WALDEMAR SETON,
Vice President.

Attest:

CLARENCE D. PHILLIPS,
Secretary.

Be It Further Resolved that the executive officers of this corporation be and they hereby are authorized to proceed with any and all action necessary under the provisions of said license. [2563]

Certificate

I, Clarence D. Phillips, hereby certify that I am the duly appointed, qualified and acting Secretary of Portland General Electric Company; that the above and foregoing resolution was duly adopted at a duly called meeting of the Board of Directors of said Company held on January 22, 1952, and that the same is a true and correct copy of said resolution as the same appears of record in the minute records of said corporation.

Witness my hand and seal this twenty-second day of January, 1952.

/s/ CLARENCE D. PHILLIPS,
Secretary. [2564]

TERMS AND CONDITIONS OF LICENSE FOR UNCONSTRUCTED MAJOR PROJECT AFFECTING LANDS OF THE UNITED STATES.

Article 1. The entire project, as described in the order of the Commission, shall be subject to all the provisions, terms, and conditions of the license.

Article 2. No substantial change shall be made in the maps, plans, specifications, and statements described and designated as exhibits and approved by the Commission in its order as a part of the license

until such change shall have been approved by the Commission: Provided, however, that if the Licensee or the Commission deems it necessary or desirable that said approved exhibits, or any of them, be changed, there shall be submitted to the Commission for approval amended, supplemental, or additional exhibit or exhibits covering the proposed changes which, upon approval by the Commission, shall become a part of the license and shall supersede, in whole or in part, such exhibit or exhibits theretofore made a part of the license as may be specified by the Commission.

Article 3. Said project works shall be constructed in substantial conformity with the approved exhibits referred to in Article 2 herein or as changed in accordance with the provisions of said article. Except [2565] when emergency shall require for the protection of life, health, or property, no substantial alteration or addition not in conformity with the approved plans shall be made to any dam or other project works under the license without the prior approval of the Commission; and any emergency alteration or addition so made shall thereafter be subject to such modification and change as the Commission may direct. Minor changes in the project works or divergence from such approved exhibits may be made if such changes will not result in decrease in efficiency, in material increase in cost, or in impairment of the general scheme of development; but any of such minor changes made without the prior approval of the Commission, which in its judgment have produced or will pro-

duce any of such results, shall be subject to such alteration as the Commission may direct. The Licensee shall comply with such rules and regulations of general or special applicability as the Commission may from time to time prescribe for the protection of life, health, or property.

Article 4. The construction, operation, and maintenance of the project and any work incident to additions or alterations, whether or not conducted upon lands of the United States, shall be subject to the inspection and supervision of the Regional Engineer, Federal Power Commission, in the region wherein the project is located, or of such other officer or agent as the Commission may designate, who shall be the authorized representative of the Commission for such purposes. The Licensee shall furnish to said representative such information as he may require concerning the construction, operation, [2566] and maintenance of the project, and of any alteration thereof, and shall notify him of the date upon which work will begin, and as far in advance thereof as said representative may reasonably specify, and shall notify him promptly in writing of any suspension of work for a period of more than one week, and of its resumption and completion. The Licensee shall allow him and other officers or employees of the United States, showing proper credentials, free and unrestricted access to, through, and across the project lands and project works in the performance of their official duties.

Article 5. Upon the completion of the project, or at such other time as the Commission may direct,

the Licensee shall submit to the Commission for approval revised maps, plans, specifications, and statements insofar as necessary to show any divergence from or variations in the project area and project boundary as finally located or in the project works as actually constructed when compared with the area and boundary shown and the works described in the license or in the maps, plans, specifications, and statements approved by the Commission, together with a statement in writing setting forth the reasons which in the opinion of the Licensee necessitated or justified variations in or divergence from the approved maps, plans, specifications, and statements. Such revised maps, plans, specifications, and statements shall, if and when approved by the Commission, be made a part of the license under the provisions of Article 2 hereof.

Article 6. For the purpose of determining the stage and flow of the stream or streams from which water is to be diverted for the operation of the project works, the amount of water held in and withdrawn from storage, and the effective head on the turbines, the [2567] Licensee shall install and thereafter maintain such gages and stream-gaging stations as the Commission may deem necessary and best adapted to the requirements; and shall provide for the required readings of such gages and for the adequate rating of such stations. The Licensee shall also install and maintain standard meters adequate for the determination of the amount of electric energy generated by said project works. The number, character, and location of gages,

meters, or other measuring devices, and the method of operation thereof, shall at all times be satisfactory to the Commission and may be altered from time to time if necessary to secure adequate determinations, but such alteration shall not be made except with the approval of the Commission or upon the specific direction of the Commission. The installation of gages, the ratings of said stream or streams, and the determination of the flow thereof, shall be under the supervision of, or in cooperation with, the District Engineer of the United States Geological Survey having charge of stream-gaging operations in the region of said project, and the Licensee shall advance to the United States Geological Survey the amount of funds estimated to be necessary for such supervision or cooperation for such periods as may be mutually agreed upon. The Licensee shall keep accurate and sufficient record of the foregoing determinations to the satisfaction of the Commission, and shall make return of such records annually at such time and in such form as the Commission may prescribe.

Article 7. In the construction and maintenance of the project, the location and standards of roads and trails, and other land uses [2568] including the location and condition of quarries, borrow pits, spoil disposal areas, and sanitary facilities shall be subject to the approval of the department or agency of the United States having supervision over the lands involved.

Article 8. In the construction and maintenance of the project works, the Licensee shall place and

maintain suitable structures and devices to reduce to a reasonable degree the liability of contact between its transmission lines, and telegraph, telephone, or other signal wires or power transmission lines constructed prior to its transmission lines and not owned by the Licensee, and shall also place and maintain suitable structures and devices to reduce to a reasonable degree the liability of any structures or wires falling and obstructing traffic and endangering life on highways, streets, or railroads.

Article 9. The Licensee shall make provision, or shall bear the reasonable cost, as determined by the agency of the United States affected, of making provision for avoiding inductive interference between any project transmission line or other project facility constructed, operated, or maintained under the license, and any radio installation, telephone line, or other communication facility installed or constructed before or after construction of such project transmission line or other project facility and owned, operated, or used by such agency of the United States in administering the lands under its jurisdiction. None of the provisions of this article is intended to relieve the Licensee from any responsibility or requirement [2569] which may be imposed by other lawful authority for avoiding or eliminating inductive interference.

Article 10. The Licensee shall prior to flooding clear all lands in the bottoms and margins of reservoirs up to high-water level, shall clear and keep clear to an adequate width lands of the United

States along open conduits, and shall dispose of all temporary structures, unused timber, brush, refuse, or inflammable material resulting from the clearing of the lands or from the construction and maintenance of the project works. In addition, all trees along the margins of reservoirs which may die during operations of the project shall be removed. The clearing of the lands and the disposal of the material shall be done with due diligence and to the satisfaction of the authorized representative of the Commission.

Article 11. The Licensee shall clear such portions of transmission line rights-of-way across lands of the United States as are designated by the officer of the United States in charge of the lands; shall keep the areas so designated clear of new growth, all refuse, and inflammable material to the satisfaction of such officers; shall trim all branches of trees in contact with or liable to contact the transmission line; shall cut and remove all dead or leaning trees which might fall in contact with the transmission line; and shall take such other precautions against fire as may be required by such officer. No fires for the burning of waste material shall be set except with the prior written consent of the officer of the United States in charge of the lands as to time and place. [2570]

Article 12. Timber on lands of the United States cut, used, or destroyed in the construction and maintenance of the project works or in the clearing of said lands shall be paid for in accordance with the requirements of and at the current stumpage rates

applicable to the sale of similar timber by the agency of the United States having jurisdiction over said lands; and all slash and debris resulting from the cutting or destruction of such timber shall be disposed of as the officer of such agency may direct.

Article 13. The Licensee shall do everything reasonably within its power and shall require its employees, contractors, and employees of contractors to do everything reasonably within their power, both independently and upon request of officers of the agency of the United States concerned, to prevent, make advanced preparations for suppression, and suppress fires on or near lands occupied under the license.

Article 14. The operations of the Licensee so far as they affect the use, storage, and discharge from storage of waters affected by the license, shall at all times be controlled by such reasonable rules and regulations as the Commission may prescribe for the protection of life, health, and property, and in the interest of the fullest practicable conservation and utilization of such waters for power purposes and for other beneficial public uses, including recreational purposes; and the Licensee shall release water from the project reservoir at such rate in cubic feet per second, or such volume in acre-feet per specified period of time, as the Commission may prescribe for the purpose hereinbefore mentioned. [2571]

Article 15. The Licensee shall interpose no objection to, and shall in no way prevent, the use by the agency of the United States having juris-

diction over the lands of the United States affected, or by persons or corporations occupying lands of the United States under permit, of water for fire suppression from any stream, conduit or body of water, natural or artificial, used by the Licensee in the operation of the project works covered by the license, or to the use by said parties of water for sanitary and domestic purposes from any stream or body of water, natural or artificial, used by the Licensee in the operation of the project works covered by the license.

Article 16. The Licensee shall be liable for injury to, or destruction of, any buildings, bridges, roads, trails, lands, or other property of the United States, occasioned by the construction, maintenance, or operation of the project works or of the works appurtenant or accessory thereto under the license. Arrangements to meet such liability, either by compensation for such injury or destruction, or by reconstruction or repair of damaged property, or otherwise, shall be made with the appropriate department or agency of the United States.

Article 17. So far as is consistent with proper operation of the project, the Licensee shall allow the public free access, to a reasonable extent, to project waters and adjacent lands owned by the Licensee for the purpose of full public utilization of such lands and waters for navigation and recreational purposes, including fishing and hunting, and shall allow for such purposes the construction of [2572] access roads, wharves, landings, and other facilities on its lands the occupancy of which may

in appropriate circumstances be subject to payment of rent to the Licensee in a reasonable amount: Provided, that the Licensee may reserve from public access, such portions of the project waters, adjacent lands, and project facilities as may be necessary for the protection of life, health, and property and provided further, that the Licensee's consent to the construction of access roads, wharves, landings, and other facilities shall not without its express agreement place upon the Licensee any obligation to construct or maintain such facilities.

Article 18. The Licensee shall allow any agency of the United States, without charge, to construct or permit to be constructed on, through, and across the project lands, conduits, chutes, ditches, railroads, roads, trails, telephone lines, and other means of transportation and communication not inconsistent with the enjoyment of said lands by the Licensee for the purposes stated in the license. This article shall not be construed as conferring upon the Licensee any right of use, occupancy, or enjoyment of the lands of the United States other than for the construction, operation, and maintenance of the project as stated in the license.

Article 19. There is reserved to the appropriate department or agency of the United States, or of the State or county involved, the right to take over, maintain, and supervise the use of any project road after construction of the project works is completed.

Article 20. The actual legitimate original cost of the original project, and of any addition thereto or betterment thereof; shall be [2573] determined by

the Commission in accordance with the Act and Commission's rules and regulations thereunder.

Article 21. After the first twenty (20) years of operation of the project under the license, six (6) per cent per annum shall be the specified rate of return on the net investment in the project for determining surplus earnings of the project for the establishment and maintenance of amortization reserves, pursuant to Section 10(d) of the Act; one-half of the project surplus earnings, if any, accumulated after the first twenty years of operation under the license, in excess of six (6) per cent per annum on the net investment, shall be set aside in a project amortization reserve account as of the end of each fiscal year, provided that, if and to the extent that there is a deficiency of project earnings below six (6) per cent per annum for any fiscal year or years after the first twenty years of operation under the license, the amount of such deficiency shall be deducted from the amount of any surplus earnings accumulated thereafter until absorbed, and one-half of the remaining surplus earnings, if any, thus cumulatively computed, shall be set aside in the project amortization reserve account; and the amounts thus established in the project amortization reserve account shall be maintained therein until further order of the Commission.

Article 22. No lease of the project or part thereof whereby the lessee is granted the exclusive occupancy, possession, or use of project works for purposes of generating, transmitting, or distributing power shall be made without the prior written

approval of the Commission; and the Commission may, if in its judgment the situation warrants, [2574] require that all the conditions of the license, of the Act, and of the rules and regulations of the Commission shall be applicable to such property so leased to the same extent as if the lessee were the Licensee; Provided, that the provisions of this article shall not apply to parts of the project or project works which may be used by another jointly with the Licensee under a contract or agreement whereby the Licensee retains the occupancy, possession, and control of the property so used and receives adequate consideration for such joint use, or to leases of land while not required for purposes of generating, transmitting, or distributing power, or to buildings or other property not built or used for said purposes, or to minor parts of the project or project works, the leasing of which will not interfere with the usefulness or efficient operation of the project by the Licensee for such purposes.

Article 23. The Licensee, its successors and assigns will, during the period of the license, retain the possession of all project property covered by the license as issued or as later amended, including the project area, the project works, and all franchises, easements, water rights, and rights of occupancy and use; and that none of such properties necessary or useful to the project and to the development, transmission, and distribution of power therefrom will be voluntarily sold, transferred, abandoned, or otherwise disposed of without the

approval of the Commission: Provided, that a mortgage or trust deed or judicial sales made thereunder, or tax sales, shall not be deemed voluntary transfers within the meaning of this article. In the event the project [2575] is taken over by the United States upon the termination of the license as provided in Section 14 of the Act, or is transferred to a new licensee under the provisions of Section 15 of the Act, the Licensee, its successors and assigns will be responsible for and will make good any defect of title to or of right of user in any of such project property which is necessary or appropriate or valuable and serviceable in the maintenance and operation of the project, and will pay and discharge, or will assume responsibility for payment and discharge, of all liens or incumbrances upon the project or project property created by the Licensee or created or incurred after the issuance of the license: Provided, that the provisions of this article are not intended to prevent the abandonment or the retirement from service of structures, equipment, or other project works in connection with replacements thereof when they become obsolete, inadequate, or inefficient for further service due to wear and tear, or to require the Licensee, for the purpose of transferring the project to the United States or to a new licensee, to acquire any different title to or right of user in any of such project property than was necessary to acquire for its own purposes as Licensee.

Article 24. The terms and conditions expressly set forth in the license shall not be construed as im-

pairing any terms and conditions of the Federal Power Act which are not expressly set forth herein.

F.P.C. Docketed Jan. 28, 1952. [2576]

[Title of Commission and Cause.]

February 12, 1952

NOTICE OF OPINION No. 222 AND ORDER

Notice is hereby given that, on December 21, 1951, the Federal Power Commission issued its opinion and order, entered December 18, 1951, issuing license (Major) in the above-entitled matter.

LEON M. FUQUAY,
Secretary. [2578]

United States of America,
Federal Power Commission

Before Commissioners: Thomas C. Buchanan, Chairman; Claude L. Draper, Nelson Lee Smith and Harrington Wimberly.

February 26, 1952

In the Matter of Portland General Electric Company—Project No. 2030.

ORDER DENYING APPLICATION FOR REHEARING

On January 21, 1952, the State of Oregon, the Oregon Fish Commission and the Oregon State Game Commission, Interveners, filed an application

for rehearing on the Commission's Opinion No. 222 and accompanying order issued December 21, 1951, in the above-designated matter. The order issued a license to Portland General Electric Company pursuant to the Federal Power Act authorizing the company to construct, operate and maintain a water power project on the Deschutes River, Oregon, commonly known as the Pelton Project.

The Commission finds:

No good reason appears for granting a rehearing on the opinion and order issued December 21, 1951, in this matter.

The Commission orders:

The application for rehearing is hereby denied.

By the Commission.

LEON M. FUQUAY,
Secretary.

Date of Issuance: February 29, 1952. [2579]

In the United States Court of Appeals
for the Ninth Circuit

No. 13,345

THE STATE OF OREGON, THE FISH COMMISSION OF OREGON, and the OREGON STATE GAME COMMISSION, Interveners,
Petitioners,

vs.

FEDERAL POWER COMMISSION,
Respondent.

CERTIFICATE OF TRANSCRIPT OF THE RECORD

Pursuant to the provisions of Section 313(b) of the Federal Power Act, the Federal Power Commission, in connection with the above-entitled proceeding, hereby certifies that the documents described below and attached hereto are true and correct copies of said documents now on file with the Commission, and constitute the transcript of the record upon which its Opinion No. 222 and order issuing license, issued December 21, 1951, complained of, were entered In the Matter of Portland General Electric Company (hereinafter called "Portland"), Project No. 2030.

Description of Document

Transcript of hearing held June 11, 1951, Vol. 1, Page 1.

Transcript of hearing held June 12, 1951, Vol. 1, Page 167.

Transcript of hearing held June 13, 1951, Vol. 2, Page 343.

Transcript of hearing held June 14, 1951, Vol. 2, Page 506.

Transcript of hearing held June 15, 1951, Vol. 3, Page 705.

Transcript of hearing held June 18, 1951, Vol. 3, Page 926.

Transcript of hearing held June 19, 1951, Vol. 4, Page 1144.

Transcript of hearing held June 20, 1951, Vol. 4, Page 1328.

The exhibits set forth below were offered in evidence at the hearings held June 11, 12, 13, 14, 15, 18, 19, and 20, 1951.

Exhibits

1 Memorandum of agreement dated June 23, 1948, between the United States of America and the States of Washington, Oregon, and Idaho respecting the Lower Columbia River Fishery Program, Vol. 5, Page 1538.

2 Biennial Report of the Fish Commission of the State of Oregon, 1951, Vol. 5, Page 1543.

3 Plan and Profile, Deschutes River, Vol. 5, Page 1582.

4 Letter dated July 28, 1949, from the Acting Secretary of the Department of Agriculture to FPC, Vol. 5, Page 1583.

5 Letter dated August 3, 1949, from the Office of the Chief of Engineers, Department of the Army to FPC, Vol. 5, Page 1584.

6 Letter dated September 15, 1949, from the Act-

ing Secretary of the Interior to FPC, Vol. 5, Page 1585.

7 Letter dated June 11, 1951, by the Secretary of the Interior to FPC, Vol. 5, Page 1590.

8 Letter dated July 6, 1949, by the Hydroelectric Commission of Oregon to Northwest Power Supply Company, with order enclosed therewith, Vol. 5, Page 1595.

9 Letter dated September 1, 1950, from the Fish Commission of Oregon to Northwest Power Supply Company, with excerpts from the minutes of the meeting of the Fish Commission of Oregon held August 22, 1950, enclosed therewith, Vol. 5, Page 1601.

10 Letter dated April 6, 1951, by Northwest Power Supply Company to Fish Commission of Oregon, Vol. 5, Page 1605.

11 Supplement to application for preliminary permit by Northwest Power Supply Company before the Hydroelectric Commission of the State of Oregon, together with copy of order dated May 15, 1951, of the Fish Commission of the State of Oregon, Vol. 5, Page 1607.

12 An outline of costs of hatchery salvage operations on the Deschutes River in the event of the Pelton Dam construction, Vol. 5, page 1613.

13 Letter dated April 16, 1951, by Portland to the Fish Commission of Oregon, Vol. 5, Page 1618.

14 Estimate of annual cost and value—power only—of 108,000 kws, Vol. 5, Page 1622.

15 Value of potential power output of proposed Pelton Project based on estimated cost of power

from alternative steam-electric generating station, Vol. 5, Page 1623.

16 Past and estimated future electric power requirements of the system of Portland, Vol. 5, Page 1624.

17 Estimate of dependable capacity of proposed Pelton Project on the estimated 1955 load of the electric system of Portland, Vol. 5, Page 1625.

18 Estimate of dependable capacity of the proposed Pelton Project on the 1960 load of the electric system of Portland, Vol. 5, Page 1626.

19 Graph — Daily load curve sheet, December, 1960, peakday, December—week day, Portland, Vol. 5, Page 1627.

20 Past and estimated future electric power requirements for the western group of the Northwest Power Pool operating in Northwest Region VII, Vol. 5, Page 1628.

21 Past and estimated future electric power requirements and power supply for the smaller electric systems connected to the Western Group of the Northwest Power Pool in Region VII, Vol. 5, Page 1629.

22-A Estimated future electric power supply for the systems comprising the Western Group of the Northwest Power Pool operating in Region VII, Vol. 5, Page 1630.

22-B Estimated future electric power supply for the systems comprising the Western Group of the Northwest Power Pool operating in Region VII, Vol. 5, Page 1631.

23 Letter dated April 20, 1951, by the Acting

Regional Director, Bureau of Reclamation, Department of the Interior, to Portland, together with stipulation enclosed therewith, Vol. 5, Page 1632.

24 Letter dated May 10, 1951, by Northwest Power Supply Company to Acting Regional Director, Bureau of Reclamation, Vol. 5, Page 1636.

25 Advance Program for Defense, 1951, Bonneville Power Administration, Vol. 5, Page 1637.

26 Portland, Net System Load, Vol. 5, Page 1690.

27 Portland, estimated annual cost of power from proposed Pelton Project 120,000 kw rated capacity, Vol. 5, Page 1691.

28 The Fishery Development Program in the Lower Columbia River, by Leo L. Laythe (reprint from Vol. 78, Transactions of the American Fisheries Society), Vol. 5, Page 1692.

29 1949-1950 Biennial Report of the Oregon State Game Commission, Vol. 5, Page 1707.

30-A Map — Upper Deschutes drainage and spawning ground survey, Sheet 1, Vol. 5, Page 1750.

30-B Map — Upper Deschutes drainage and spawning ground survey, Sheet 2, Vol. 5, Page 1751.

30-C Map — Upper Deschutes drainage and spawning ground survey, Sheet 3, Vol. 5, Page 1752.

31 The Fisheries Resources of the Deschutes Basin, by Donald L. McKernan and Donald R. Johnson, June, 1951, Vol. 5, Page 1753.

32 Statement submitted June, 1951, to the Fed-

eral Power Commission concerning the Pelton Dam Project, by Washington State Department of Fisheries, Vol. 5, Page 1781.

33 Letter dated March 7, 1951, by the Fish Commission of Oregon to Portland, Vol. 5, Page 1798.

34 Summary of Production and Operation Costs of Fish and Wild Life Service Hatcheries in Washington, Oregon, California, and Idaho, 1945-1949, Vol. 5, Page 1800.

35 Annual Report for 1949, Washington Department of Fisheries, Vol. 5, Page 1803.

36 Resolution No. 15 of the Oregon State Building and Construction Trades Council (received in evidence by order entered August 14, 1951), Vol. 5, Page 1998.

37 Resolution No. 4 of the Oregon Federation of Labor (received in evidence by order entered August 15, 1951), Vol. 5, Page 1999.

38-A Letter dated July 6, 1951, by the Secretary of the Interior to FPC (received in evidence by order entered August 14, 1951), Vol. 5, Page 2000.

38-B Letter dated June 22, 1951, by Administrator, Defense Electric Power Administration, to Hon. Carl Hayden (received in evidence by order entered August 14, 1951), Vol. 5, Page 2001.

38-C Memorandum by Administrator of the Defense Fisheries Administration to the Secretary of the Interior (received in evidence by order entered August 14, 1951), Vol. 5, Page 2003.

39 Letter dated July 2, 1951, by Senator Carl L. Hayden to FPC (received in evidence by order entered August 14, 1951), Vol. 5, Page 2005.

The Items set forth below were offered in evidence by reference to the files of the Commission.

Description of Document

Item No. A. Application for license, Project No. 57, and all formal amendments, supplements thereto and orders of the Commission with respect thereto, Vol. 6, Page 2006.

Item No. B-1. Application for license, filed May 23, 1949, for Pelton Project No. 2030, appears in this record at p. 2132.

Item No. B-2. Supplement to application for license, filed April 9, 1951, appears in this record at p. 2253.

Item No. B-3. Supplement No. 2 to application for license, filed June 15, 1951, appears in this record at p. 2313.

* * * * *

Application for license, together with exhibits thereto, filed May 23, 1949, Vol. 7, Page 2132.

Tracing exhibits, as part of application last above, filed May 24, 1949, Vol. 7, Page 2197.

Letter dated June 8, 1949, by Columbia River Salmon & Tuna Packers Association, filed June 13, 1949, Vol. 7, Page 2207.

Letter dated June 8, 1949, by Western Representative of the Isaac Walton League of America, Inc., filed June 13, 1949, Vol. 7, Page 2208.

Letter dated June 9, 1949, by the Fish Commission of Oregon to FPC, together with statement enclosed therewith, filed June 14, 1949, Vol. 7, Page 2209.

Letter dated June 15, 1949, by FPC to the Chief

of Engineers, Department of the Army, Vol. 7, Page 2228.

Letter dated June 15, 1949, by FPC to the Secretary of the Interior, Vol. 7, Page 2229.

Letter dated June 15, 1949, by FPC to the Secretary of Agriculture, Vol. 7, Page 2231.

Notice dated June 17, 1949, of application for license, Vol. 7, Page 2233.

Letter dated June 17, 1949, by FPC giving notice of application to Hydroelectric Commission of Oregon, and others, Vol. 7, Page 2235.

Letter dated June 17, 1949, by FPC to Public Utilities Commissioner of Oregon giving notice of application, Vol. 7, Page 2236.

Letter dated June 17, 1949, by FPC to the Governor of Oregon giving notice of application, Vol. 7, Page 2237.

Letter dated June 13, 1949, by Oregon State Grange, filed June 17, 1949, Vol. 7, Page 2238.

Letter dated June 20, 1949, by FPC to Bureau of Land Management, Vol. 7, Page 2239.

Letter dated June 22, 1949, by Columbia River Salmon & Tuna Packers Association, filed June 24, 1949, Vol. 7, Page 2241.

Letter dated June 24, 1949, by Public Utilities Commissioner of Oregon, filed July 5, 1949, Vol. 7, Page 2243.

Letter dated July 7, 1949, by the Hydroelectric Commission of Oregon, filed July 15, 1949, Vol. 7, Page 2244.

Letter dated July 13, 1949, by Tribal Attorney

of Warm Springs Indians of Oregon, filed July 18, 1949, Vol. 7, Page 2245.

Proof of publication of notice of application in the Madras Pioneer, filed July 26, 1949, Vol. 7, Page 2246.

Report of the Secretary of Agriculture on application for license, filed July 29, 1949, appears in this record as Exhibit 4 at p. 1583.

Letter dated July 28, 1949, by the Western Representative of the Isaac Walton League of America, Inc., filed August 1, 1949, Vol. 7, Page 2247.

Letter dated July 29, 1949, by Oregon Division of the Isaac Walton League of America, Inc., filed August 1, 1949, Vol. 7, Page 2249.

Report of Chief of Engineers, Department of the Army on application for license filed August 4, 1949, appears in this record as Exhibit 5 at p. 1584.

Report of the Secretary of the Interior on application for license filed September 19, 1949, appears in this record as Exhibit 6 at p. 1585.

Letter dated December 19, 1949, supplementing application filed December 22, 1949, Vol. 7, Page 2251.

Supplement to application for license filed April 9, 1951, together with exhibits thereto, Vol. 7, Page 2253.

Letter dated April 17, 1951, by FPC to the Secretary of the Interior requesting report on application, Vol. 8, Page 2299.

Order fixing hearing, entered April 24, 1951, Vol. 8, Page 2301.

Letter dated April 30, 1951, by FPC to the Bureau of Land Management, Vol. 8, Page 2303.

Order postponing date of hearing, entered May 17, 1951, Vol. 8, Page 2305.

Letter dated May 21, 1951, by Northwest Power Supply Company relative to changes in exhibits, filed May 23, 1951, Vol. 8, Page 2306.

Designation of Examiner Costello to preside at hearing, filed May 25, 1951, Vol. 8, Page 2307.

Telegram dated June 11, 1951, by the Oregon Division of the Isaac Walton League requesting permission to file petition to intervene, filed June 11, 1951, Vol. 8, Page 2308.

Telegram dated June 12, 1951, by the Assistant Attorney General of Oregon requesting authority for the State of Oregon, et al. to intervene, filed June 12, 1951, Vol. 8, Page 2309.

Report of the Secretary of the Interior on application for license filed June 11, 1951, appears in this record as Exhibit 7 at p. 1590.

Order granting intervention of Oregon Division of Isaac Walton League, Inc., entered June 14, 1951, Vol. 8, Page 2310.

Order granting intervention of the State of Oregon et al. entered June 14, 1951, Vol. 8, Page 2311.

Revised Tracing L-9, filed June 15, 1951, Vol. 8, Page 2312.

Second Supplement to application for license, filed June 15, 1951, together with exhibits thereto, Vol. 8, Page 2313.

Petition for intervention of the Oregon Division

of the Isaac Walton League of America, Inc., filed June 18, 1951, Vol. 8, Page 2363.

Petition of the State of Oregon to intervene, filed July 2, 1951, Vol. 8, Page 2367.

Order denying motion for omission of intermediate decision procedure, entered July 3, 1951, Vol. 8, Page 2374.

Supplemental Report of the Secretary of the Interior (with attachments thereto) on application for license filed July 9, 1951, appear in this record as exhibits 38-A, 38-B and 38-C at pp. 2000, 2001, and 2003, respectively.

Memorandum dated June 27, 1951, by Presiding Examiner submitting motion for omission of intermediate decision procedure to the Commission, filed July 10, 1951, Vol. 8, Page 2375.

Motion of Applicants (Northwest Power Supply Company and Portland) to incorporate evidence in the record, filed July 11, 1951, Vol. 8, Page 2381.

Objections of the State of Oregon, etc., to Applicant's motion, filed July 16, 1951, Vol. 8, Page 2385.

Motion of Commission staff counsel to incorporate evidence in the record, filed July 17, 1951, Vol. 8, Page 2390.

Objections of the Oregon Division of the Isaac Walton League of America, Inc., to Applicant's motion, filed July 17, 1951, Vol. 8, Page 2392.

Order reopening record and receiving certain documents in evidence, entered August 14, 1951, Vol. 8, Page 2395.

Presiding Examiner's certification of the record of hearing, filed October 22, 1951, Vol. 8, Page 2397.

Presiding Examiner's recommended decision and order, filed October 22, 1951, Vol. 8, Page 2403.

Telegram dated November 6, 1951, by the Assistant Attorney General of Oregon requesting extension of time for filing exceptions, filed November 6, 1951, Vol. 8, Page 2466.

Notice dated November 7, 1951, extending time for filing exceptions, Vol. 8, Page 2467.

Exceptions of the State of Oregon, et al, filed November 21, 1951, Vol. 8, Page 2468.

Order denying motion for leave to present oral argument, entered December 18, 1951, Vol. 8, Page 2490.

Opinion No. 222 entered December 18, 1951, and issued December 21, 1951, Vol. 8, Page 2491.

Order issuing license (major) entered December 18, 1951, and issued December 21, 1951, Vol. 8, Page 2502.

Application for rehearing of the State of Oregon, filed January 21, 1952, Vol. 8, Page 2516.

License for Project No. 2030 as executed and accepted by Portland, Vol. 8, Page 2537.

Letter dated January 31, 1952, by FPC to Portland, Vol. 8, Page 2577.

Notice dated February 12, 1952, of opinion No. 222, and order published in the Federal Register, Vol. 8, Page 2578.

Order denying application for rehearing entered February 26, 1952, Vol. 8, Page 2579.

By the Commission.

In witness whereof I have hereunto subscribed

my name and caused the seal of the Federal Power Commission to be affixed this thirteenth day of ..... 1952, at Washington, D. C.

[Seal] /s/ LEON M. FUQUAY,
Secretary.

In the United States Court of Appeals
for the Ninth Circuit

No. 13345

In the Matter of
PORTLAND GENERAL ELECTRIC COMPANY (AND NORTHWEST POWER SUPPLY COMPANY), THE STATE OF OREGON, THE FISH COMMISSION OF OREGON, THE OREGON STATE GAME COMMISSION, Intervenors, Petitioners,

vs.

FEDERAL POWER COMMISSION,
Respondent.

PETITION FOR REVIEW TO SET ASIDE AN ORDER OF THE FEDERAL POWER COMMISSION

To the Honorable the Judges of the United States Court of Appeals for the Ninth Circuit:

May It Please the Court:

(a) Nature of Proceedings:

The State of Oregon, in its sovereign capacity, the Fish Commission of Oregon and the Oregon State Game Commission, the last both being administra-

tive agencies and commissions of the State of Oregon, existing under and by virtue of the laws of the State of Oregon, the former being charged with the administration of the commercial fishing and fisheries laws of said State and the latter being charged with the power and authority to formulate the general policies and programs of said State respecting the management, protection, preservation, propagation and promotion of game fish in said State, respectfully petitions this Honorable Court to review and to set aside the order of the Federal Power Commission granting and authorizing the issuance of a license (major) to the Portland General Electric Company, under Section 4(e) of the Federal Power Act, to construct, operate and maintain a proposed hydro-electric generating plant on the Deschutes River, an interior, non-navigable river of the State of Oregon, and the right to use, divert, and impound the waters in the Deschutes River and its tributaries, all interior, non-navigable rivers of Oregon, all for the reasons stated in the petitioner's application for a re-hearing filed with the Federal Power Commission on January 21, 1952.

(b) Determination of Venue:

Venue and the right to review are predicated on the provisions of Section 313(b) of the Federal Power Act, (49 Stat. 860, T. 16 U.S.C.A., Section 825 l.(b)). Petitioners, on January 21, 1952, filed with the Federal Power Commission an application for a re-hearing to the final decision and order of said Commission granting to the Portland General

Electric Company a license (major) to construct a hydroelectric (F.P.C. Project No. 2030) generating plant and other facilities on the Deschutes River in the State of Oregon.

The Federal Power Commission, on February 29, 1952, issued its order denying petitioner's application for a re-hearing.

Portland General Electric Company is an electric public utility corporation organized under the laws of the State of Oregon with its principal office in the city of Portland in said State. It is engaged as an electric public utility in the business of generating, transmitting and selling electric energy in the State and district of Oregon and within the jurisdiction of this Court.

This petition for review has been filed in this Court and a copy thereof together with a notice that the petitioners have filed the petition in this Court, have been duly served on the Federal Power Commission within sixty days from the date of the order of said Commission denying re-hearing, all in conformity to the rules of this Court and the provisions of Section 313(b) of the Federal Power Act.

(c) Relief prayed for:

The petitioners respectfully pray that the final decision and order of the Federal Power Commission issuing a license (major) to the Portland General Electric Company to construct, operate and maintain a hydroelectric project on the Deschutes River and to use, divert, and impound the waters of said River and its tributaries be vacated, reversed and set aside; that the Court hold and determine

that the Federal Power Commission does not have the jurisdiction, power or authority affirmatively to authorize and to license the construction, operation and maintenance of the proposed project and that the application for a license to construct, operate and maintain the proposed project be ordered dismissed.

(d) Statement and points relied on:

The petitioners rely on the following points and grounds to sustain the petition for review, all of which points and grounds will be stated more fully and will be supported by the citation of legal authorities in the brief and argument of petitioners subsequently to be filed herein:

Statement

The State of Oregon, the Fish Commission of Oregon, the Oregon State Game Commission and the Sellwood Chapter (Portland, Oregon), Izaak Walton League of America, Inc., intervened in this proceeding before the Federal Power Commission and opposed and objected to the issuance of a license to the Portland General Electric Company authorizing it to construct, operate and maintain the proposed hydroelectric project on the Deschutes River in Oregon.

The Tribal Council for the Warm Springs Indian Reservation of Oregon was a party to this proceeding before the Federal Power Commission. It offered no objection to the issuance of a license for the proposed project.

An application for a license under the Federal Power Act was filed on May 23, 1949, by the North-

west Power Supply Company of Portland, Oregon, a corporation originally formed in 1949 under the sponsorship of three operating utility companies in the region for the principal purpose of obtaining a license for development of a hydroelectric site on the Deschutes River in Oregon, known as the Pelton Site. Subsequently, two of the sponsoring companies became interested in other power developments, leaving Portland General Electric Company of Portland, Oregon, as the only sponsoring company directly interested in the proposed development. A supplement to the application filed in June, 1951, states that the Portland General Electric Company has become the applicant for a license. A public hearing on the application was held in Portland, Oregon, commencing on June 11, 1951. Petitions for permission to intervene in this matter as formal parties were filed by the Attorney General of the State of Oregon, the Oregon Fish Commission, the Oregon State Game Commission and the Oregon Division of the Izaak Walton League of America, Inc. These petitions were granted. During the course of the public hearing, oral and documentary evidence was presented in opposition to and in favor of the proposed project.

The proposed project would consist of a concrete arch dam approximately 205 feet high, a reservoir with a normal pool at elevation 1,580 feet, (which will be drawn down six feet in normal operation), three short penstocks, a side channel and tunnel spillway, an outdoor type powerhouse located near the dam containing three 52,000 horsepower tur-

bines operating under a gross head of about 152 feet connected to three 36,000 kilowatt generators (a total capacity of 108,000 kilowatts), and related facilities, including a switching station and a 230 kv transmission line. In addition to these power facilities, the project would include a second, but smaller, re-regulating dam located about three miles downstream from the power dam. Behind this smaller dam, which would perform no power functions, but would serve to iron out the fluctuating flows produced by the power production at the main dam, there would be a small reservoir with normal pool level at elevation 1,422.

Construction of the proposed project would prevent free passage of anadromous fish in the Deschutes River and would result ultimately in their total destruction. These fish are dependent on spawning grounds for survival, all of which are above the Pelton Site. There are in excess of 700 miles of stream above the Pelton Site, 154 miles of which are known, by actual survey, to contain various grades of spawning gravel. Fish ladders over a dam of this height are impractical, for the reason that it is impossible for anadromous fish to use ladders of such height. For this reason Portland General Electric Company, in addition to the works generally outlined above, proposed to install certain facilities at the project for the purpose of holding anadromous fish below the dam relieving them of their eggs so that the eggs could be transported by truck to a hatchery for artificial rearing of the fingerling fish which, under natural conditions, would

have been produced in the waters above the dam. A more detailed statement concerning this proposal will be made later on.

The Deschutes is an interior, nonnavigable river of the State of Oregon and is a tributary of the Columbia River. A setting forth of some general facts relative to the geography, topography and stream flow may be helpful in understanding the issues of this case.

The Deschutes River rises near the summit of the Cascade Range and flows northward along the foot of the eastern slope to join the Columbia River at a point about 15 miles upstream from The Dalles, Oregon. The drainage basin, with an area of about 10,500 square miles, has a shape somewhat like an inverted Y, and Little Deschutes River forms the drainage pattern of the western arm. Twenty miles below its junction with Little Deschutes River, the main stream flows through Bend, the most important city in the basin.

About 55 miles north of Bend, two important tributaries, the Metolius and Crooked Rivers join the main stream, from the west and east, respectively, and at that point the flow from springs greatly augments the run-off which is depleted by irrigation diversions above Bend. Only two other important tributaries, Warm Springs River and White River at mile 84 and mile 47, respectively, enter the stream below Bend. Most of the basin is covered with timber, and this timbered area includes all of Deschutes National Forest, and por-

tions of Mt. Hood and Ochoco National Forests. Topography of the basin is generally broken and rugged, except for the central Oregon plateau and the comparatively level bench lands in the mid-valley section. Throughout the lower 130 miles, the river flows in a narrow canyon with an average fall of 17.6 feet to the mile. The agricultural lands consist largely of high table lands cut by deep canyons through which the rivers flow and small arable areas which border the streams. The soil is a *course,* disintegrated lava and the rocks of the entire area are volcanic and very porous. The river valley varies in width from 200 to 1,200 feet.

The geological formations, being porous in nature, act as underground reservoirs regulating run-off from the basin. The Deschutes River has perhaps the most uniform flow of any river of comparable size in the Columbia River Basin, and has a maximum discharge near Madras, which is in the vicinity of the proposed project, of about 13,300 cubic feet per second, the minimum at the same point being about 2,940 cubic feet per second. The mean annual run-off near Madras is 3,011,800 acre-feet, and the average flow is about 4,200 cfs.

Flow in the Deschutes is remarkably uniform, and because of the geological conditions in the basin, large floods are not regarded as probable in any part of the basin except on Crooked River, which enters the Deschutes from the east at mile 113, or about 10 miles above the proposed project. No floods causing major damage are known to have occurred.

Metolius and Warm Springs Rivers are the principal salmon supporting tributaries of Deschutes River. These streams support runs of spring chinook salmon and steelhead trout. Falls and dams above the confluence of Metolius River block the upstream passage of anadromous fish. The Oregon Fish Commission has constructed and put into operation a salmon hatchery on Metolius River. The Deschutes River has numerous rainbow, cutthroat, German brown trout, steelhead and salmon and is nationally known for its sport fishing.

Seasonal low flows of Deschutes River and its tributaries above Bend are completely appropriated and are used primarily for irrigation of lands lying east of the river.

The proposed project would occupy lands of the United States and would affect the Warm Springs Indian Reservation.

On January 20, 1949, four months prior to the filing of its application with the Federal Power Commission, the Northwest Power Supply Company filed with the Hyroelectric Commission of Oregon an application for a preliminary permit, Project No. 170, commonly known as the Pelton Project, for authority to appropriate 7,040 cubic feet per second of water from the Deschutes River for the purpose of developing 120,000 theoretical horsepower under a head of 150 feet and to construct a dam and powerhouse at the Pelton Site.

This application was filed in compliance with the terms of Title 119, Ch. 1, Sec. 119-101 et seq., Ore-

gon Compiled Laws Annotated, which, in substance, provides that no water-power project involving the right to use or appropriate the waters of any rivers or other bodies of water within the State of Oregon, for the generation of electricity shall be begun or constructed except in conformity with the provisions of said Act, which, among other things, provides for the issuance of a preliminary permit by the Oregon Hydroelectric Commission before any such water-power project shall be initiated.

Section 83,316, Oregon Compiled Laws Annotated (Oregon Laws 1921, Ch. 105, Sec. 49), provides in substance that in the event any person desires to construct a dam in any of the streams of Oregon to a height that will make a fish ladder or fishway thereover impracticable in the opinion of the Oregon Fish Commission, then such person may make an application to the Commission for a permit to construct the dam. The Oregon Fish Commission is authorized to grant such permit in its discretion on the condition that the person so applying for such permit shall convey to the State of Oregon a site of the size and dimensions satisfactory to the Fish Commission, at such place as may be selected by said Commission, and shall erect thereon a hatchery and hatchery residence in accordance with plans and specifications to be furnished by the Commission. The act further provides that such person shall enter into an agreement with the Commission secured by bond to furnish all water and light without expense, to operate said proposed hatchery. This act further provides that the Fish Commission shall not

issue a permit for the construction of any such dam until the person applying for such permit shall have actually conveyed said land to the State and shall have erected said hatchery and hatchery residence thereon in accordance with said plans and specifications.

A public hearing was held on said application by the Hydroelectric Commission. It found that the Deschutes and Metolius Rivers are spawning grounds for anadromous fish; that the proposed dam would be of such height that fish ladders or fishways would be impracticable and that the release of water from said river for peaking purposes would endanger the lives of fishermen and would be injurious to young fish. Based on these findings the Hydroelectric Commission, on July 1, 1949, issued the following order:

"1. That the Northwest Power Supply Company file with the Hydroelectric Commission of Oregon a certified copy of its application to the Fish Commission of the State of Oregon, made pursuant to Section 83-316, O.C.L.A., for a permit to construct, at its Pelton site on the Deschutes River, a dam of a height which will make a fish ladder or fishway therefore impracticable.

"2. That the applicant file with the Hydroelectric Commission of Oregon, a statement from the Fish Commission of the State of Oregon, or a certified copy thereof, that said Fish Commission will issue such a permit, pursuant to the provisions of said Section 83-316, showing compliance therewith.

"3. That the applicant be and it hereby is notified that should a preliminary permit be granted by the Hydroelectric Commission, it will be required to submit to the Commission plans for either eliminating or regulating the operational fluctuations of water below the dam to an amount which will not be dangerous to human life or injurious to fish life."

Therefore, in obedience to said order, the Northwest Power Supply Company applied to the Oregon Fish Commission for a permit to construct said dam. The applicant stated that it would construct a fish hatchery and convey it to the State in conformity to the above-mentioned statute. After careful consideration of the application and based on information obtained from its own investigation together with information obtained from the Oregon State Game Commission and the United States Fish and Wildlife Service, the Oregon Fish Commission denied the application for the reasons generally that the State would suffer great financial loss in being compelled to abandon its fish hatchery on the Metolius River; that federal funds in the amount of $220,000 for the future development of said fish hatchery were then being withheld pending the outcome of said application and that the fish handling facilities proposed by the applicant in lieu of fish ladders were impracticable.

Subsequently, the Portland General Electric Company, as successor in interest to the Northwest Power Supply Company, filed an application with

the Oregon Fish Commission for a reconsideration of its former action denying the application of the Northwest Power Supply Company. It proposed, as a substitute for the free passage of fish up the river, to construct facilities below the dam for holding adult salmon and steelhead until they were ready to spawn and to pay $100,000 a year toward the cost of transporting the eggs to the State's hatchery on the Metolius River and for transporting the fingerlings from the hatchery to a point below the dam for release or, in lieu of this, it proposed to acquire a site on the Warm Springs River in the Indian Reservation and to construct a hatchery thereon to be used in lieu of the present hatchery of the State located on the Metolius River. This application was likewise denied by the Oregon Fish Commission for substantially the same reasons that it denied the application of the Northwest Power Supply Company. The reasons for the denial for both these applications will appear more fully in copies of the orders of the Oregon Fish Commission which will be contained in the printed record to be filed later in this case.

By order dated September 7, 1951, the Hydroelectric Commission of Oregon denied the application of the Northwest Power Supply Company and the Portland General Electric Company for reconsideration of the former order of said Commission heretofore referred to, for the reason that the applicant had failed to comply with the requirements of the order of said Commission of July 1, 1949. This order is not a matter of record in the tran-

script of evidence before the Federal Power Commission in this proceeding. However, a certified copy of such order was mailed to Mr. Leon M. Fuquay, Secretary of the Federal Power Commission, Washington, D. C., and the Portland General Electric Company, Portland, Oregon, by Mr. Charles E. Stricklin, Secretary of the Hydroelectric Commission of Oregon, both on October 17, 1951. A certified copy of this order will be placed in the custody of the clerk of this Court for inspection by the Court on the hearing of this petition.

The Federal Power Commission found that the Deschutes River is a nonnavigable stream; that the proposed project would not affect interstate or foreign commerce; that the operation of the proposed project in conjunction with the re-regulating dam would prevent the project from adversely affecting interests downstream since substantially all the natural river flow will be released through the dam at all times; that the proposed project will occupy lands of the United States; that under Section 10(a) of the Federal Power Act, the proposed project is in the public interest and will provide for comprehensive development of the Deschutes River and will be consistent with further comprehensive development of that stream and of the Columbia (River) Basin.

Points and Grounds for Review

The petitioners, in the application before the Federal Power Commission for a re-hearing made the following objections to the order of said Com-

miss on. Said objections and the reasons therefore were supported by the citation of legal authorities all of which will be stated and argued fully in the petitioners' brief and argument to be filed later herein.

The Commission in the Opinion Erred in Holding:

1. "The proposed project, if constructed, would occupy lands and a reservation of the United States. Therefore, construction of the project without a license from this Commission would be unlawful."

2. "* * * that there is no State law which would by its own terms prohibit construction of the project, although the two State Commissions have so far refused to issue the permits or licenses."

3. "* * * it is clear that the State laws involved cannot stand as a complete legal bar to Federal authorization of a project lacking a State permit if, in the judgment of the Commission, that project is best adapted to comprehensive plans and would be of unmistakable public benefit."

The Commission in the Order Erred in Finding:

1. "All other structures, fixtures, equipment or facilities used or useful in the maintenance and operation of the project and located on the project area, including such portable property as may be used or useful in connection with the project or any part thereof, whether located on or off the project area, if and to the extent that the inclusion of such property as a part of the project is

approved or acquiesced in by the Commission; also all riparian or other rights, the use or possession of which is necessary or appropriate in the maintenance and operation of the project."

2. "Construction, operation and maintenance of proposed Project No. 2030 would affect public lands and a reservation of the United States. Consequently, under the provisions of Section 23(b) of the Federal Power Act the applicant may not construct, operate or maintain the proposed project works upon those lands of the United States until it shall have received a license under the provisions of that Act."

3. "The refusal of the Oregon Fish Commission, acting under an existing law of the State of Oregon, to issue a permit for the Pelton project, is not a bar to the issuance of a Federal Power Act license and to the construction and operation of the proposed project under such license, if that project is found to meet the standards specified for comprehensive waterpower development in the Federal Power Act."

4. "Any rights to the use of waters in the Deschutes River and its tributaries in connection with the Licensee's project under this license shall be subordinate to:

"(i) All existing rights, whether or not perfected, to the waters of the Deschutes River and its tributaries for domestic, stock, municipal and irrigation purposes, including the right to store any

such waters in the proposed Benham Falls, Post and Prineville reservoirs and in the existing Crane Prairie, Crescent Lake, and Wickiup reservoirs; and

"(ii) The use of additional flows of the Deschutes River and its tributaries pursuant to rights which may be initiated hereafter for the diversion and storage of waters for domestic, municipal, stock and irrigation purposes in connection with any reclamation projects undertaken pursuant to the Federal Reclamation Laws (Act of June 17, 1902, 32 Stat. 388, and acts amendatory thereof or supplementary thereto), the amounts of water to be used under the additional rights, together with the uses under existing rights whatever they may be, not, by reason of the additional right, to exceed these quantities:

"(a) Deschutes River and its tributaries above Cline Falls—entire flow;

"(b) Squaw Creek—all flows during the non-irrigation season;

"(c) Lake Creek—20,000 acre-feet annually;

"(d) Crooked River and its tributaries—all the flows above the Highway Bridge at the place where U. S. Highway 97 crosses the Crooked River Canyon;

"(e) Crooked River below the Highway Bridge —not to exceed 2,500 acre-feet annually for the proposed Deschutes project domestic water system; and

"(f) An additional 400 second-feet that may be taken above the Licensee's project either from the

Deschutes River below Cline Falls or the Crooked River below the Highway Bridge during the irrigation season."

The Following Findings of Fact made by the Commission in the Opinion are not supported by substantial evidence:

1. "Therefore, for the purpose of determining the economic feasibility of the project we find that the total annual cost to the applicant of the fish conservation facilities will be $795,000."

2. "* * * that the total annual values attributable to the project will exceed the total annual project costs and losses associated therewith by at least $351,000 Some additional irrigation diversions may be made in the future at points above the dam site, but until that time the total annual values will exceed costs and losses by about $450,000."

3. "Furthermore, the serious regional power shortage will not be met by the planned Federal power construction, but additional generating plants must be built as rapidly as possible, especially where, as here proposed, the installation can be made with a minimum loss of time and with substantial assistance to other power suppliers."

4. "We find nothing in the Army report or the Fisheries Plan which would preclude the issuance of a license for the Pelton project if it is a desirable project in the public interest and meets the standards prescribed by the Federal Power Act."

5. "* * * but there is no evidence to show any

serious injury to the sports or recreational fishery. In any event any such injury would be offset to some extent, if not entirely, by the lake fishery and the recreational opportunities to be provided by the project reservoir."

6. "The Deschutes River is not now, nor has it been in recent years, a particularly plentiful producer of salmon and steelhead trout."

7. "The record shows, as found by the Examiner, that the Deschutes River above the Pelton site is not now a relatively large producer of anadromous fish and the likelihood of its becoming so in the near future is rather remote."

8. "After examining the record, we are in agreement with the Examiner that no substantial evidence has been brought forward to show that the facilities proposed for conserving the fish will not maintain existing runs. Moreover, there are indications that the runs can be increased."

The following Findings of Fact made by the Commission in the Order Issuing License are not supported by substantial evidence:

1. "During the five year period 1950-1955, the peak load for the system of Portland General Electriet Company will increase by at least 183,000 kilowatts and the energy requirements during the same period will increase by at least 884,300,000 kilowatthours, and the load will continue to increase beyond 1955."

2. "The Pacific Northwest Region has been deficient in dependable capacity to supply the area loads from 1946 to 1951 and will continue to be deficient until 1956, even if all projects now under construction and proposed for construction are constructed and completed on time."

3. "Other hydroelectric sites available to applicant for development in lieu of the Pelton site are limited, more costly and smaller in productive capacity."

4. "The record fails to show that the Deschutes River system above the Pelton site is capable under natural conditions of producing anadromous fish in substantially greater numbers than are now produced there."

5. "There is nothing novel, unusual or out of the ordinary with respect to the fishery conservation facilities proposed by applicant."

6. "The applicant proposes to operate or arrange for the operation of the fish conservation facilities in accordance with approved methods."

7. "Construction, operation and maintenance of the Pelton project will not be detrimental to the fishery resources below the re-regulating dam."

8. "There is no substantial evidence in the record to show that the fishery facilities proposed by the applicant in accordance with the plans prepared by the Fish Commission of Oregon will not maintain existing runs, and there is a possibility that the runs can be increased."

9. "The main reservoir, with elevation 150 feet above the present water elevation, would be more accessible to the public for recreational use, particularly upon completion of a contemplated State highway, and will offer recreational opportunities to people from local and distant areas."

10. "The Portland General Electric Company is a corporation organized under the laws of the State of Oregon and has submitted satisfactory evidence of compliance with the requirements of all applicable State laws insofar as necessary to effect the purposes of a license for the project."

Conclusion

The petitioners respectfully contend that the order of the Federal Power Commission granting a license (major) to the Portland General Electric Company to construct the project in question is in violation of the statutes and laws of the United States and is in violation of the constitution, statutes and laws of the State of Oregon; that the Federal Power Commission had no jurisdiction, power or authority to issue said order; that said Commission's findings, under Section 10(a) of the Federal Power Act, that the proposed project is best adapted to a comprehensive plan for all the purposes set forth in said statute is not supported by substantial evidence; that said order is in violation of Section 9(b) of the Federal Power Act for the reason that the applicant failed to present any evidence of its compliance with the laws of the State of Oregon with respect to the construction

of said project; that the said Federal Power Commission had no jurisdiction, power or authority to authorize said applicant to use, divert and impound the waters of the Deschutes River, an internal, nonnavigable stream of the State of Oregon.

Wherefore, petitioners respectfully pray that said order of the Federal Power Commission be set aside.

Respectfully submitted,

/s/ GEORGE NEUNER,

Attorney General for The State of Oregon, Salem, Oregon.

/s/ E. G. FOXLEY,

Deputy Attorney General for the State of Oregon, Salem, Oregon.

/s/ ARTHUR G. HIGGS,

Assistant Attorney General for The State of Oregon, 1634 Southwest Alder St., Portland 8, Oregon, Attorneys for Petitioners.

Duly Verified.

[Endorsed]: Filed Apr. 16, 1952. Paul P. O'Brien, Clerk.

[Title of U. S. Court of Appeals and Cause.]

PETITIONER'S STATEMENT OF POINTS AND DESIGNATION OF RECORD

Pursuant to Rule 19, Paragraph 6 of this Court, the State of Oregon, the Fish Commission of Oregon, and the Oregon State Game Commission, peti-

tioners, hereby make the following statement of points on which they intend to rely in this proceeding, together with a designation of all of the record which is material to the consideration of the review herein.

Points on Which Petitioner Intends to Rely

1. The Federal Power Commission does not have jurisdiction, power, or authority to authorize and to license the construction, operation, and maintenance of the proposed project.

2. The Deschutes River and its tributaries are internal and non-navigable streams of the State of Oregon.

3. The proposed project will not affect interstate or foreign commerce.

4. The operation of the proposed project in conjunction with the re-regulating dam will prevent the project from adversely affecting interests downstream, and will not affect the navigable flow or the navigable capacity of the Columbia River.

5. Under Section 10 (a) of the Federal Power Act, the proposed project is not in the public interest.

6. There is no provision in the Federal Constitution delegating to the central government power to control the acquisition and use of non-navigable streams.

7. Under the Acts of Congress of 1866, 1870 and 1877 (Desert Land Acts 43, U.S.C.A. 321), the Federal Government irrevocably and unconditionally surrendered, or relinquished to the States, including

the State of Oregon, whatever rights the government may have had to control the use of the waters of non-navigable streams.

8. Under the Territory Act of Oregon of August 14, 1948, it was provided that rivers and streams of water in the Territory of Oregon in which salmon are found, shall not be obstructed by dams or otherwise, unless such dams or obstructions are so constructed as to allow salmon to pass freely up and down such rivers and streams.

9. Under the Constitution and laws of the State of Oregon, no person may construct a dam in any of the streams of this State to a height that will make a fish ladder or fishway there-over impracticable, without first having obtained from the Fish Commission of Oregon a permit to construct such a dam.

10. Under the provisions of Section 116-401, O.C.L.A., all waters within the State of Oregon, from all sources of water supply, belong to the public.

11. The common law doctrine of riparian rights has been abrogated in Oregon by statute.

12. Under the Constitution of Oregon, 1859, the rights, title, and interest in and to all water for the development of water power, and to water power sites which the State of Oregon owns or hereafter acquires, shall be held in perpetuity.

13. Under the provisions of the Oregon Water Code, the waters of the State of Oregon may not be appropriated without its consent.

14. No right to appropriate or to use the waters

of the lakes, rivers, streams, or other bodies of water within the State of Oregon, including water over which the State has concurrent jurisdiction in connection with the development of any water power project for the generation of electricity, shall be initiated, perfected, acquired or held, without the consent of the State of Oregon.

15. The Federal Power Commission may not act as a substitute for the local authorities over such questions as the right to use, appropriate, divert, or impound the waters of a non-navigable stream in the State of Oregon.

16. The Federal Power Commission has no authority to allocate the use of the waters of the Deschutes River and its tributaries in connection with the Pelton project under the license granted to the Portland General Electric Company.

17. The Federal Power Commission has no authority to grant to the Portland General Electric Company, the applicant, a license to construct the project in question until the applicant has complied with Section 9 (b) of the Federal Power Act by showing compliance with the laws of the State of Oregon.

18. The Fish Commission of the State of Oregon has denied a permit to the Portland General Electric Company to construct the Pelton Dam.

19. The Hydroelectric Commission of Oregon has denied the Portland General Electric Company's application, and supplemental applications, for a preliminary permit to construct the hydroelectric project in question.

The following Findings of Fact made by the Commission are not supported by substantial evidence:

1. We find nothing in the Army report or the Fisheries Plan which would preclude the issuance of a license for the Pelton project if it is a desirable project in the public interest and meets the standards prescribed by the Federal Power Act.

2. * * * but there is no evidence to show any serious injury to the sports or recreational fishery. In any event any such injury would be offset to some extent, if not entirely, by the lake fishery and the recreational opportunities to be provided by the project reservoir.

3. The Deschutes River is not now, nor has it been in recent years, a particularly plentiful producer of salmon and steelhead trout.

4. The record shows, as found by the Examiner, that the Deschutes River above the Pelton site is not now a relatively large producer of anadromous fish and the likelihood of its becoming so in the near future is rather remote.

5. After examining the record, we are in agreement with the Examiner that no substantial evidence has been brought forward to show that the facilities proposed for conserving the fish will not maintain existing runs. Moreover, there are indications that the runs can be increased.

6. The record fails to show that the Deschutes River system above the Pelton site is capable under natural conditions of producing anadromous fish in

substantially greater numbers than are now produced there.

7. There is nothing novel, unusual or out of the ordinary with respect to the fishery conservation facilities proposed by applicant.

8. The applicant proposes to operate or arrange for the operation of the fish conservation facilities in accordance with approved methods.

9. Construction, operation and maintenance of the Pelton project will not be detrimental to the fishery resources below the re-regulating dam.

10. The Portland General Electric Company is a corporation organized under the laws of the State of Oregon and has submitted satisfactory evidence of compliance with the requirements of all applicable State laws insofar as necessary to effect the purposes of a license for the project.

* * * * *

/s/ GEORGE NEUNER,
Attorney General

/s/ E. G. FOXLEY,
Deputy Attorney General

/s/ ARTHUR G. HIGGS,
Assistant Attorney General

Attorneys for Petitioners

Certificate of Service attached.

[Endorsed]: Filed June 25, 1952. Paul P. O'Brien, Clerk.

[Title of U. S. Court of Appeals and Cause.]

STIPULATION

It hereby is stipulated by and between Arthur G. Higgs, one of the Attorneys for the above named Petitioners, and Bradford Ross, General Counsel for the Federal Power Commission, the above named Respondent, that the Court may, in the above entitled proceeding, consider the original exhibits to the record in this proceeding heretofore certified to and filed by said Respondent in the office of the Clerk of this Court on June 17, 1952.

It further is stipulated by and between the parties hereto that the Court may examine the certified copy of the order of the Hydroelectric Commission of Oregon dated September 7, 1951, deposited with the Clerk of this Court, denying the application of the Northwest Power Supply Company and the Portland General Electric Company for reconsideration of the former order of said Hydroelectric Commission denying their application for preliminary permit to construct the hydroelectric project in question and which said order is not an exhibit to the record certified by and filed by the Respondent herein.

Dated this 23rd day of June, 1952.

/s/ ARTHUR G. HIGGS,
Assistant Attorney General, State of Oregon, one of the Attorneys for Petitioners.

/s/ BRADFORD ROSS,
General Counsel, Federal Power Commission, Attorney for Respondent

So Ordered, July 9, 1952.

/s/ CLIFTON MATHEWS,
/s/ HOMER BONE,
/s/ WM. E. ORR,
Circuit Judges.

Dated this 7th day of July, 1952.

[Endorsed]: Filed July 10, 1952. Paul P. O'Brien, Clerk.

United States Court of Appeals for the Ninth Circuit

Excerpt from Proceedings of Wednesday, August 13, 1952.

Before: Mathews and Stephens, Circuit Judges, and Driver, District Judge.

ORDER GRANTING PETITION TO INTERVENE

Ordered that the petition of the Portland General Electric Company to intervene in the above entitled cause be, and hereby is granted, and said Portland General Electric Company is permitted to be a party intervener herein.

Before the Federal Power Commission

Project No. 2030

In the Matter of:

NORTHWEST POWER SUPPLY COMPANY.

Room 506, U. S. Post Office Building,
Portland, Oregon

Monday, June 11, 1951

The above-entitled matter came on for hearing, pursuant to notice, at 10:00 o'clock, a.m.

Before: William J. Costello, Presiding Examiner.

Appearances: Clarence D. Phillips, 807 Electric Building, Portland 5, Oregon, appearing on behalf of Northwest Power Supply Company and Portland General Electric Company. John C. Mason, appearing for the Staff of the Federal Power Commission. Staff Counsel's Technical Aides and Consultants: W. R. Farley, A. George Sunda, Almon D. Thomas. T. M. Brown, The Dalles, Oregon, appearing for Tribal Council, Warm Springs Indian Reservation of Oregon and North Unit Irrigation Project. [1*]

Rollin E. Bowles, 201 Weatherly Building, Portland, Oregon, appearing in behalf of the Izaak Walton League.

Arthur G. Higgs, Assistant Attorney General,

* Page numbering appearing at top of page of original Reporter's Transcript of Record.

State of Oregon, appearing on behalf of Oregon State Game Commission. [1A]

MARSHALL SWEARENGEN

was called as a witness, and having been first duly sworn, was examined and testified as follows:

Direct Examination

The Witness: My name is Marshall Swearengen; I am President of the Oregon Farm Bureau Federation.

Mr. Examiner, I thought I would leave everything that I am going to say, in writing.

Q. (By Mr. Phillips): May I inquire, Mr. Swearengen, how long you have lived in eastern Oregon?

A. Four years in eastern Oregon, personally; our office is now in Salem, Oregon.

* * * * * [26]

Q. Now, you mentioned briefly the fishing, and how the sport fishing would be enhanced by reason of the lake behind this dam, would be accessible, of course.

Isn't it a fact that your Crane Prairie Dam up there has created a reservoir for irrigation and has provided some excellent fishing grounds?

A. That's one thing our folks did feel. There is a point I would like to make: quite often you classify farmers, and then you classify another group of folks as sportsmen; 90 to 95 per cent of every farmer is one of the best sportsmen in the world; he utilizes his hunting and fishing facilities

(Testimony of Marshall Swearengen.)

to as great an extent as any of the city folk, so when those people are talking about fish there, I believe they are quite honest in their belief that it will even develop more fishing facilities.

Q. The Deschutes River primarily is a sports fishing stream, is it not? [33]

A. Definitely is. I have frankly been through there many, many times; I have never known of any commercial fishermen in the Deschutes—I may be wrong.

* * * * * [34]

Q. There has been some testimony with respect to the fishing resource at that point that it may create. There has been a reference to this project in relation to the Crane Prairie Reservoir, now are you aware of from what spawning area was lost to the Deschutes System by the creation of the Crane Pairie Reservoir?

A. No. sir, I am not, but I am aware of the Fish Commission beginning now to put in legal size fish instead of depending too much upon minnows. This again is certainly not an experts opinion, but the farmers out there feel that there will be just as good fishing below and above the dam; and the lake availability of the fish, a lot of people enjoy lake fishing, especially inasmuch as we go whole-heartedly in the demand, you might say, in that the PG&E do spend money to give us sufficient facilities for developing large trout.

Q. It is the opinion of your organization then

(Testimony of Marshall Swearengen.)

that this lake created by the Pelton Project will be available as a fishing reservoir?

A. We certainly hope that it will be, yes, sir.

Mr. Bowles: That is all.

Presiding Examiner: Do you have redirect?

Mr. Phillips: No, no further questions.

Mr. Mason: Could I ask one? I don't know whether the [43] witness answered or Mr. Bowles, but we have troubles with localities out here. Where is Crane Prairie?

Mr. Bowles: Crane Prairie is an irrigation project reservoir well beyond this up stream in the Deschutes system.

* * * * * [44]

JOHN T. CHINOCK

was called as a witness, and having been first duly sworn, was examined and testified as follows:

Direct Examination

Q. (By Mr. Phillips): Mr. Chinock, where do you reside, please?

A. I reside at Madras, Oregon.

* * * * * [49]

The Witness: In all three petitions it recites generally that there is a power shortage of central Oregon that could be eleviated by the development of this dam.

They have considerable natural resources in the nature of farm products and related industries and lumber as well as industry, which could be assisted greatly with the development of the power. We also

(Testimony of John T. Chinock.)

feel that the dam will in no way damage the fishing industry in any respect, that the salmon in the Metolius River is at the present time so minute as to have no general effect on the fishing industry, the commercial fishing [50] whatsoever. We also feel that an excellent recreational area will develop in Central Oregon and that will be caused by the development of this lake which would be an advantage being much closer to Portland than any of the other Central Oregon recreational areas.

We also feel that under the present system with long power lines coming over 100 miles to Central Oregon of such length they are subject to sabotage and acts of God to cut down or cut out the power in Central Oregon at any time.

* * * * * [51]

Q. How do your people propose to increase the tourist industry over there as a result of the creation of this project?

A. I should increase it by the creation of the dam which will or could become a fishing center. I don't know how much fishing goes on in Central Oregon, but I have been doing considerable of it in the past several years and it has been my observation that there is more fishing done in the lakes than there are on the rivers. The lakes are always very very heavily fished.

For example, as you may know, East Lake and Crane Prairie at the opening of the season there there was over a thousand cars at East Lake and Lord only knows how many at Crane Prairie. They

(Testimony of John T. Chinock.)

were backed up so far they couldn't count them.

Q. You feel that the creation of this dam will bring another lake of that potential fishing in there?

A. I definitely do, particularly since the Portland General Electric has made very positive statements that they would keep that dam and lake open for recreational purposes.

* * * * * [53]

L. G. BERTRAM

was called as a witness, and having been first duly sworn, was examined and testified as follows:

Direct Examination

Q. (By Mr. Phillips): Where do you reside, Mr. Bertram? A. Bend, Oregon.

Q. And how long have you lived there?

A. I have lived in Bend, Oregon, about 28—very near 29 years.

* * * * * [58]

Q. Did you ever see salmon fishing on the Deschutes River?

A. I have never seen salmon fishing on the Deschutes, nor in our investigation have we found where any—many of the old timers say they have never seen it; some of them says [61] they have seen a pool; others say they have lived there all their lives and have never seen them.

Mr. Phillips: You may examine.

* * * * * [62]

(Testimony of L. G. Bertram.)

Cross Examination

Q. (By Mr. Bowles): Have you ever examined the Metolius River for salmon?

A. I have never examined it for salmon; I have fished in it quite a bit. I practically fished there for the last eight years.

Mr. Bowles: That's all.

* * * * * [63]

J. W. NARTZ

was called as a witness, and having been first duly sworn, was examined and testified as follows:

Direct Examination

Q. (By Mr. Phillips): Mr. Nartz, where do you reside?

A. I reside at Ashwood area, Jefferson County.

Q. Whereabouts is Ashwood from Madras?

A. Thirty miles east of Madras.

Q. Have you lived in that country for some time? A. Thirty-one years.

Q. And what is your occupation?

A. Farmer.

* * * * * [65]

Q. Now, do you know anything about the fishing in the [69] Deschutes?

A. Yes, I've fished all my life.

Q. And what has been your observation with respect to salmon fishing in the Deschutes?

A. What salmon that I have observed have all been well downstream from the present proposed Pelton Dam site.

(Testimony of J. W. Nartz.)

Q. Have you ever seen any salmon up above the confluence of the Warm Springs River?

A. Yes; there is another small stream called Trout Creek; I have some 3,000 acres of pasture land that lays on there and I have observed fish and wild life and game progress in that area, of course, the entire time that I have lived there, and there have been a few salmon there; but, that is well downstream from the Pelton Project.

Q. Both that and the Warm Springs are downstream from the Pelton Project? A. Yes.

Q. Well, I mean at the site of the Pelton Project, and from there upstream; did you ever see any salmon up these?

A. No, I never did.

Mr. Phillips: I have no further questions.

Cross Examination

Q. (By Mr. Bowles): As long as we are concerned with this fishing at the moment, Mr. Nartz, have you ever had occasion to make an [70] examination of the area above the site of the Pelton Dam for salmon?

A. I have fished many, many times on the Metolius River and I have never observed any salmon.

Q. Would you say there weren't any there?

A. Technically, of course, I couldn't answer that; I don't know whether there is: there could be a lot of things in the river that a person don't observe.

* * * * * [71]

GLEN DESHAZER

was called as a witness, and having been first duly sworn, was examined and testified as follows:

Direct Examination

Q. (By Mr. Phillips): Mr. Deshazer, where do you reside, please?

A. On the Deschutes River.

Q. And whereabouts on the Deschutes?

A. Just below the Pelton Dam, where it will be built.

Q. Just below the Pelton Dam?

A. Yes.

Q. Have you looked at the general plans or made any study of where this dam will be located?

A. Some, yes.

Q. And do you mean by "below the dam," below the main dam, or below the regulating dam?

A. Below the main dam.

Q. Will you be above or below the reregulating dam?

A. Be under it; beneath. [87]

Q. How long have you lived in that community?

A. Thirty-seven years.

* * * * * [88]

Q. Now, do you know anything about the salmon in the Deschutes River?

A. Well, I've never seen any.

Q. And you have lived there 37 years?

A. Yes.

Q. Do you fish? A. Yes.

Q. Do you catch trout? A. Yes.

(Testimony of Glen Deshazer.)

Q. You never saw any salmon in the Deschutes?

A. No, I have never seen any.

Q. Are you familiar with the canyon that would be flooded by the main dam? A. Yes.

Q. And is that readily accessible to the public at the [89] present time for any kind of sport or recreation?

A. Yeah, if you want to walk down there; it's a very steep canyon; not very many people get in there.

Q. No roads built in the canyon?

A. No. Horseback is about the only way you can get in.

Q. Do you know approximately how deep that canyon is?

A. Well, I'd say 300 feet, maybe.

Q. If the canyon was made into a lake, can you see any possibility of recreational facilities there, in the form of a lake?

A. Yes, it would make a nice lot of fishing—more than there is now, I'm sure.

Q. In your opinion could roads be built, access roads, to the lake? A. Oh, yes.

Q. If it was raised to the level? A. Yes.

Mr. Phillips: You may examine.

* * * * * [90]

Cross Examination

Q. (By Mr. Bowles): I see.

And, have you ever had occasion, now, to look for salmon [91] in the river, there?

(Testimony of Glen Deshazer.)

A. Well, when I was fishing, I'd like to catch one if there was one in there.

Q. But, the fact that you didn't catch one, wouldn't of course necessitate that they weren't there?

A. Oh, no; but, I've fished all my life there and I've never seen one.

Q. But, you weren't actually looking for a salmon.

Mr. Bowles: That's all; no further questions.

Q. (By Mr. Higgs): Mr. Deshazer, you don't mean to testify here that there are no salmon in that river, do you?

A. No; only that I haven't seen any.

Q. I see.

And, can you tell this Commission what other migratory fish are in that river, other than salmon?

A. There are a few steelheads.

Q. You know salmon are not the only migratory fish that swims; you know that, do you not?

A. Yes.

Q. Well, the questions here today, so far as I know, all have been concerning salmon. There are other migratory fish; can you tell this Commission what other migratory fish, other than the steelhead, that you have seen in the Deschutes River?

A. Well, does that take in trout? [92]

Q. I think so.

A. Whitefish; grayling; bullheads——

Mr. Higgs: That's all.

Presiding Examiner: Mr. Mason?

(Testimony of Glen Deshazer.)

Q. (By Mr. Mason): Mr. Deshazer, when you testified you hadn't seen any salmon in the Deschutes, what areas were you talking about?

A. Right there where I live, two miles below the Pelton Dam site.

Q. Just a two-mile stretch is all you are talking about?

A. Well, of course, I've fished down maybe 20 miles, 10 each way, I'd say, from where I live.

Q. And that was the area you had in mind when you testified you hadn't seen any salmon?

A. Yes.

* * * * * [93]

JOHN L. CAMPBELL

was called as a witness, and having been first duly sworn, was examined and testified as follows:

Direct Examination

Q. (By Mr. Phillips): Where do you reside?

A. About two miles below the Pelton Dam site, near the Deschutes River.

Q. You are more or less familiar with the plans for the Pelton Dam and where its location is?

A. Yes, sir.

Q. How long have you lived in that area?

A. About 58 years. [107]

Q. That is most of your life, isn't it?

A. I am 62.

Q. What kind of work are you engaged in?

A. Farming.

Q. How large is your farm?

(Testimony of John L. Campbell.)

A. 5,000 acres.

Q. Are you situated right next to the Deschutes River?

A. Some of my land joins the Deschutes River.

Q. Would you be effected as far as the flooding of the dam for—the reregulating dam?

A. Some pasture land, yes.

* * * * * [108]

Q. Do you know anything about the fishing in the Deschutes [109] River?

A. Well, I have fished there since I was old enough and I qualify as knowing about it.

Q. Do you know anything about the salmon in the Deschutes River?

A. I saw one there in that length of time, back probably 1896. I caught one there too.

Q. I am talking of the area at or above the dam site. A. This was just below.

Q. Salmon do come up as far as the Warm Springs, sometimes?

A. I have seen them in the Warm Springs.

Q. That is below the Pelton site?

A. That is right.

Q. Your fishing over there is sport fishing for the most part, is it not?

A. Probably 100 per cent sports fishing.

Q. That is for trout?

A. Trout and Dolly Varden.

Q. What kind of trout? A. Rainbow.

Q. Rainbow and Dolly Varden? A. Yes.

Q. Have you talked to a good many people

(Testimony of John L. Campbell.)

around in that country with respect to fishing in the Deschutes? [110]

A. Yes, I have, many times.

Q. Have you found many people that saw any or any considerable number of salmon in that stream? A. No.

Q. By your answer do you mean that you have not seen any salmon?

A. There has been some salmon seen in the Metolius River after the salmon hatchery was placed there.

Q. Since the salmon hatchery was placed there?

A. That is true. I talked to Mr. Allen who lives at the head of the river in 1896 and for a few years later and he said there was no salmon in that before the time the hatchery was placed there. He lived there and was a fisherman.

Q. How long has the hatchery been in there?

A. I can't answer that. I don't know.

Mr. Higgs: If the Examiner please, I think that is a little remote, 55 years ago.

Q. (By Mr. Phillips): Have you seen anybody fishing out that way with salmon gear of any kind on the Deschutes below the Pelton site?

A. No.

Q. If this dam is built and a lake made available behind the dam, would you think there would be any sources of recreation for the people or that community or tourists that might come?

A. There would be just like any lake, yes, boating and [111] fishing.

(Testimony of John L. Campbell.)

Q. Are you more or less familiar with the canyou that would be flooded by the proposed lake?

A. I am.

Q. Is it very accessible at the present time?

A. Only by walking or horseback. There are no roads to it.

Q. If a dam was constructed and a lake made available by access roads, do you think the people would use it for recreational and fishing purposes?

A. I am sure of it, yes.

Q. Have you talked with other people besides Mr. Allen?

A. Yes, I talked with Mr. Graham who lives up the river a few miles north of the Metolius River. He came there in 1906, I believe. I had a conservation and took notes of this particular thing.

* * * * * [112]

Q. (By Mr. Phillips): Mr. Campbell, you may refresh yourself from your notes and tell us what information you got from talking to people in that community and who you talked with.

A. Mr. Graham who came in 1902 to what we call the lower Riggs ranch on the Metolius River and has lived there ever since that time or in the vicinity. Not in the river, but right near and he tells me that in that part of the river he never has seen a salmon. At the head of the river in 1923 he caught one.

Q. Caught one? A. One.

Q. Is that the only one he ever caught?

A. That is right.

(Testimony of John L. Campbell.)

Q. Did you talk with anybody else?

A. I talked with Mrs. Hubbard who came to the river just above the Lower Riggs Ranch in 1912. They own a farm there with [113] three mile river front and have a fisherman's camp there and she tells me that she never saw a salmon taken from the river, but she heard of one just above their place during the time she was there, up to three years ago.

Q. Only one? A. One.

Q. Who else did you talk with?

A. I would say that is all on that particular question.

* * * * * [114]

T. A. POWERS

was called as a witness, and having been first duly sworn, was examined and testified as follows:

Direct Examination

Q. (By Mr. Phillips): Where do you reside, please?

A. T. A. Powers; I am a County Judge; my home is at Madras.

Q. Judge Powers, where do you live?

A. Madras, Oregon.

Q. And you hold an official position in Jefferson County? A. I am County Judge.

* * * * * [117]

Q. Well, now, Judge Powers, how long have you lived in Madras?

A. I lived in Madras for 11 years; I lived in Jefferson County 41 years.

(Testimony of T. A. Powers.)

Q. Forty-one years; you are pretty familiar with that community over there?

A. Very much so. [118]

* * * * *

Q. (By Mr. Phillips): Now, Judge, do you ever do any fishing? A. Oh, occasionally.

Q. How many years have you been fishing?

A. Well, off and on about 41 years; since I've been in Oregon.

Q. Do you fish in the Deschutes River?

A. I've fished every inch.

Q. Did you fish above the present dam site?

A. I've fish from the mouth clear to the head.

Q. You have fished the whole stream?

A. The whole stream.

Q. Do you know anything about whether or not salmon ever come in that stream?

A. I have never seen a salmon there in that stream in all the years I have been there. I never heard of one. [1222]

Q. Did you ever hear of anybody catching one?

A. No, I did not. I saw one salmon up at the hatchery; whether it was brought in there or came in there under its own power, or how, I don't know. [123]

* * * * *

C. F. SEE

was called as a witness, and having been first duly sworn, was examined and testified as follows: [144]

(Testimony of C. F. See.)

Direct Examination

Q. (By Mr. Phillips): Mr. See, where do you reside?

A. Along the bank of the Deschutes River.

Q. Whereabouts along the banks of the Deschutes River.

A. Well, located below the site of the Pelton Dam and above the site of the reregulating dam.

Q. Will you be affected by the reregulating dam?

A. Yes, I'll be flooded out apparently.

Q. How much of your land will be flooded?

A. Approximately 30 acres.

Q. How many acres do you own along the Deschutes? A. About 30.

Q. How long have you lived there, Mr. See?

A. I have only lived there two years, prior to that I lived at Warm Spring.

Q. You lived at Warm Springs for how long?

A. About fourteen years.

Q. Are you acquainted with the people around that community?

A. More with the people on the reservation and the saw mill workers right there at Warm Springs. * * * * * [145]

Q. Do you know anything about the fishing up the Deschutes?

A. Well, I started fishing out there in 1920.

Q. Do you know of any salmon in the Deschutes River about the site of the dam or the reregulating dam?

(Testimony of C. F. See.)

A. I think I have probably seen a half a dozen that I [146] thought was salmon in the past ten years.

Q. You have seen salmon in the Warm Springs River? A. Oh, yes.

Q. That is below the dam site?

A. Oh, yes, about ten miles below. [147]

* * * * *

HOWARD TURNER

was called as a witness, and having been first duly sworn, was [152] examined and testified as follows:

Direct Examination

Q. (By Mr. Phillips): Where do you live, Mr. Turner? A. Madras.

Q. How long have you lived there?

A. Since 1903. [153]

* * * * *

Q. Do you know anything about the fishing in the Deschutes above the Pelton and around the Pelton site?

A. Well, I have fished there ever since I have been in the country on different parts of the river and in the early days I got—Since I can't get around so much I go down to the Pelton dam a great deal.

Q. Do you ever see or get any salmon?

A. I never caught any and never saw any in the Deschutes River.

Q. Have you talked to people around there to determine whether or not any of the other people

(Testimony of Howard Turner.)

saw any or very much salmon in that area in the Deschutes area?

A. I talked with some people that have seen the salmon in the Warm Springs River. I know that at one time a great many years ago that some salmon came up the Warm Springs Agency, I was talking with the man that had charge of the power development there and they had quite a little trouble with the salmon at that point.

Q. That didn't occur as an annual event or anything of that kind? [154] A. No, sir.

Q. If there had been salmon in the river, do you expect that you would be fishing for salmon as well as trout?

A. Frankly, I didn't have the gear for the salmon, but I have done lots of fishing for trout.

Q. Does anybody along that stretch of the river have or ever use salmon gear, that you know of?

A. We used to do quite a little fishing in the early days for Dolly Vardens and we used that gear at that time, but I never knew of anybody ever catching any salmon. [155]

* * * * *

Mr. Brown: Mr. Examiner, as I stated yesterday, I represent the Warm Springs Indians and this may be the time for me to state our position, while we are not taking a positive stand either against or for the dam, I would like to state our position if we could.

Presiding Examiner: I don't see any reason why you should not do so now. I was in doubt as to how

you were going to proceed yesterday and there was some indication that you would seek to become an intervenor, although I didn't get any definite commitment from you on that.

Have you made any further study of that?

Mr. Brown: Yes, Mr. Commissioner, there is so much red tape involved to intervene, I would have to call in the tribal council and I would have to give them so many days notice and have a resolution adopted so I thought I might just state our position. The law protects us anyway in the Federal Power Act under Section 19 (e) and under our own Law and Constitution under the Wheeler-Howard Act of Congress.

I think I should state our position so that the public would know how we stand. [170]

Presiding Examiner: We would be very glad to hear you.

Mr. Brown: Thank you.

Presiding Examiner: This is by way of a statement by counsel. It is not evidence in the sense of the word as we ordinarily use it, is that right?

Mr. Brown: That is correct.

I want it understood that I am not speaking for the Department of the Interior, or the Bureau of Indian Affairs. I am simply a private counsel for the Tribal Council of the Warm Springs Indians of Oregon.

The Warm Springs Indians are vitally interested in this proposed project for half of the structure will be situated on Indian territory.

The Warm Springs Indian Reservation was created in 1855 on the coming of the white man the Warm Springs Indians were in possession what is now most of Central Oregon. It consisted of six tribes, John Day Indians on the east; the Wyams in the vicinity of the mouth of the Deschutes and the Talilo and Tenino Indians on the Columbia River; The Dalles-Wasco vicinity; the Hood River Wasco's or Dog-River Wasco's and the Cascade Lock and Tygh Valley Upper Deschutes band of Indians at Maupin and the upper Deschutes River.

When territory of Oregon was created by an act of Congress a part of this Act states as follows:

"From and after the passage of this act all that part of [171] the territory of the United States which lies west of the summit of the Rocky Mountains, north of the forty-second degree of north latitude, known as the Territory of Oregon, shall be organized into and constitute a temporary government, by the name of the Territory of Oregon; provided, that nothing in this Act contained shall be construed to impair the rights of person or property now pertaining to the Indians in said territory, so long as such rights remain unextinguished by treaty between the United States and such Indians, or to affect the authority of the government of the United States, to make any regulation respecting such Indians, their lands, property, or other rights, by treaty, law or otherwise, which it would have been competent to the government to make if this act had never been passed."

This Act was passed by Congress the 14th day of August 1848. Now on June 25th, 1855, General Palmer representing the Government of the United States signed a treaty near The Dalles, Oregon, with the six tribes of Indians that I have mentioned confederating them under the name of the Warm Springs Indians and in this treaty it provides among other things that the exclusive right of the taking of fish in the streams running through and bordering said reservation is hereby secured to said Indians.

That is now the law of the land, if you please.

We take the position that we have the exclusive right to [172] all the fish in the Deschutes River and in the Metolius River where they form a part of the boundary of this Reservation.

We deny that the Fish Commission has any right or any jurisdiction to either propagate or take the fish from these portions of the stream without our consent or authority.

Now, this is a reservation, not a grant from the Government, it is a reservation and the—we reserve that until ourselves. [173]

* * * * *

RONALD L. RING

was called as a witness, and having been first duly sworn, was examined and testified as follows: [260]

* * * * *

Recross Examination

Q. (By Mr. Phillips): You spoke about edible

(Testimony of Ronald L. Ring.)

fish and trash fish; people do eat white fish, don't they?

A. I couldn't find anybody who ate them there; I spoke to several fishermen and I saw several of them catch them and they threw them away and they had nothing to do with them.

Q. Did you ever eat any white fish?

A. I personally never eat them, but I've heard people in other places say they were a very good fish.

Q. That's what I always found.

A. Well, you'd have to educate the people.

Q. Did you ever see the people in the west, here, clean catfish?

A. I'v seen some people cleaning catfish on the Deschutes River, but they turned out to be southerners.

Q. Did you ever see any native Oregonians cleaning catfish out here for eating?

A. I never have. Catfish is not a native of Oregon; it was planted here. [276]

Q. You have been down this Deschutes Canyon yourself? A. Yes.

Q. Did you see any in that canyon? Did you see any sand bars that had any salmon?

A. Not many. I saw some; there are some few, very sparsely located, but they are very, very few. * * * * * [277]

JOHN C. VEATCH

was called as a witness, and having been first duly sworn, was examined and testified as follows:

(Testimony of John C. Veatch.)

Direct Examination

Q. (By Mr. Higgs): What is your business?

A. I make my living in a law office, and spend most of my time in the State Fish Commission.

Q. State Fish Commission is one of the intervenors in this case? A. Yes.

Q. Mr. Veatch, do you desire at this time to make a statement concerning the position of the Oregon Fish Commission in this matter?

A. I do. I desire to set the background of the use of the waters of the Deschutes and Metolius Rivers and the position of the Fish Commission in regard to the use of those waters.

A number of years ago, when the Government started construction of various dams and projected various dams on the Columbia River and its tributaries, the fish interests, particularly the commercial fishers on the Columbia and the commercial fisherman in the State of Washington had received benefits from the Columbia salmon fishers, it started opposition to construction [344] of various dams.

This was carried on over a period of years, and finally the Secretary of the Interior realized that something would have to be done if dam construction was to go on, to compensate to a certain extent for the damage that is being done to the loss of spawning grounds through the construction of various governmental projects.

It resulted finally in the act of Congress, I think, of August 8th of 1946, giving the Secretary of the

(Testimony of John C. Veatch.)

Interior the power to enter into agreements with the fishers and the authorities in the States of Oregon, Washington and Idaho, for the construction of various facilities for preservation and propagation of fish on the Columbia River and its tributaries.

Pursuant to that agreement, the States of Oregon, Washington and Idaho, acting through the fisheries, fishers of the states, and through the game officials of the states, entered into an agreement with the Secretary of the Interior, through the Fish and Wildlife Service providing for a program of development of the tributaries of the Columbia River below the McNary Dam.

A careful survey was made of the streams of the Columbia below the McNary Dam, and the program both as to its extent and cost was carefully worked out, an estimated cost of $20 million, based upon prices of 1945. In that program the various authorities went over the tributaries of the Columbia and determined what should be developed for the propagation of [345] fish and what other things should be done to rebuild streams that had been depleted over a period of years.

The program was put into effect that is being carried out at the present time. I think Congress so far has appropriated something over $4 million toward the carrying out of that program. Something over a million dollars, to date, has been allocated to the State of Oregon; a little over a half million has actually been turned over to the State and is being expended.

(Testimony of John C. Veatch.)

In laying out this program, the Deschutes River and its tributaries, the Metolius, was one of the most important streams that was selected for development on account of its potential value in the fisheries, the Metolius River having a particular and peculiar value of the development of fisheries, due to the fact that it is a stream that is fed entirely by springs and there is practically no variation in temperature or the flow of its waters.

The country through which this river flows is not an agricultural country; there is very little agricultural land right along this Metolius River. There are not, and in all probability can never be any towns or factories or anything along the river which would produce products. It is not subject to floods at any time to scour fish food out of the streams; it stores water through a large part of the lake, through a canyon that is inaccessible to fishermen, and it gives that protection to the [346] fish that are produced in the stream.

Now, in pursuit of that program the State of Oregon acquired a site on the headwaters of the Metolius River at a cost of $73,000. The site and the improvements they put in on this site at a cost of $73,000, and the government alloted an additional $220,000 for the purpose of starting this development. That money is now being expended.

When the Northwest Power Supply Company applied to the Fish Commission for a permit to construct a dam at this Pelton site on the Deschutes River, that money was cut off, was stopped; the

(Testimony of John C. Veatch.)

government taking the position that no money was going to be spent on streams of this state for developing fisheries if the state was going to permit construction of dams on the streams, which would make these expenditures useless.

After the Fish Commission rejected the application of the power company for a permit to construct that dam, these funds were released and are now being expended by the state on the Metolius River.

Now, the position of the Fish Commission in regard to this present application pending before the Power Commission, is simply this: that there is no way that the dam can be constructed or any dam constructed on the Deschutes River below the mouth of the Metolius; it is either going to eliminate or curtail to a great extent the use of state property which is the salmon hatchery on the Metolius River above the dam site; also [347] that any permit or any construction of a dam on that river, is in violation of the agreement which the 3 states have entered into between the states and the Secretary of the Interior to keep the streams that were selected for developing, free from dams.

Further, that the United States through another branch of the Government, is now developing the waters of the Metolius River for a public use, for the development of fisheries on that river, and the use of the same waters for power would not only be inconsistent with but would be destructive of the use that is now being placed upon those waters by governmental agencies.

(Testimony of John C. Veatch.)

Q. What agency is that, Mr. Veatch? What agency did you just refer to as the government agency?

A. The agency referred to is the Secretary of the Interior.

Q. U. S. Fish and Wildlife is participating?

A. Yes, that is a branch of the Interior Department.

Q. The Army Engineers?

A. The Army Engineers—this agreement does not include the Army Engineers.

Q. The Lower Columbia River development program, I think, is what you just testified to; are the Army Engineers interested in that?

A. Oh, the Army Engineers are, in a way; they first started—of this whole Columbia River development; it began with the construction of the Bonneville Dam, in which General Robbins, [348] here, has been in charge; and, the fishing interests, I know, we were in conference day and night on the fish; and there were more dams projected on the headwaters of the Columbia and on the Willamette and its tributaries. The fight became hotter and resulted in the agreement that was entered into between the Secretary of the Interior and the fishery authorities.

Now, that agreement required an act of Congress; there was an Act of Congress which authorized the Secretary of the Interior to enter into that agreement.

Q. And Congress has appropriated, I think you

(Testimony of John C. Veatch.)

say, several million dollars, as a result of that?

A. Congress — I can't give you that exact amount, because part of that money has been allocated for the State of Washington; as I understand it, it is something like $4,300,000 that has been appropriated to date. These appropriations are made as the money is needed, but the projected cost of the whole project is $20 million. [349]

Q. (By Mr. Higgs): Do you recall offhand, Mr. Veatch, the purpose of the Lower Columbia Development Program?

A. Well, the purpose of the Lower Columbia Program, development program was to offset the damage caused or to partly offset it, it can't wholly offset, but it was to partly offset the damage caused to the salmon fisheries in particular on the Columbia River by reason of the loss of spawning grounds due to the construction of various Federal Projects.

The pressure for that program was not confined to the two states of Oregon and Washington, but also Alaska had given moral backing for the simple reason that the salmon fisheries or the salmon that are produced in the Columbia are vitally important to the salmon fisheries of the whole northwest. Columbia River fish that have been marked on the high seas all the way from San Francisco Bay to Alaska show that a great percentage of those fish are fish that are produced in the Columbia River.

Those percentages are not accurate because the markings have not been extensive; the marking program has not been carried on long enough to give

(Testimony of John C. Veatch.)

an accurate picture on it. But for example, the most recent markings of salmon off the coast of Alaska show that 36 per cent of those salmon were Columbia River fish. That many go up and down in the years and other times, but it does show that a very substantial part of the ocean fishers of the entire northewest are fish that are produced in the Columbia [350] River.

Q. Mr. Veatch, the lower Columbia River Development was also promulgated between the state mentioned and the Federal Government in view of the fact that approximately or about 57 dams now are existing in the Columbia River Watershed, is that not so? A. I didn't get that.

Q. About 57 dams are existing in the Columbia River Watershed?

A. Yes, I don't remember the exact number, but there are a lot of them. There are a lot of them on the headwaters of the Willamette yet, but the program, that program contemplates while it isn't in detail in the actual agreement that was made by the Secretary of the Interior, was that there would be no government projects either reclamation or power constructed on any of the tributaries of the Columbia River below the McNary Dam except those that had already been projected for the headwaters of the Willamette system.

That isn't set forth as I say, it isn't set out in the agreement. It was understood what all of the Government agencies that were concerned in this matter knew.

(Testimony of John C. Veatch.)

Q. Is that all that you have to say?

A. Yes.

Presiding Examiner: Mr. Phillips, are there any questions that you would like to ask? [351]

Q. (By Mr. Phillips): Mr. Veatch, you referred to an Act of Congress of August 8, I think, 1946. Is that the agreement between these various bodies that you speak of?

A. Between what?

Q. Between the—This agreement that you speak of?

A. That was an Act of Congress authorizing the Secretary of the Interior to enter into the agreement.

Q. Who were the parties to this agreement?

A. The parties to the agreement are the United States Fish and Wildlife Service, Property Engineer, signed by Albert M. Daily, Director. Department officials by the state of Washington Game Commission by the State of Washington, by Harold L. Peoples, Chairman. Oregon Fish Commission by John C. Veatch, Chairman. The Game Commissioner of the State of Washington by E. E. Wilson, Chairman. The Department of Fish and Game of the State of Idaho by P. H. Murray.

This agreement was dated June 23, 1948.

Q. Was that recorded at any public place?

A. I don't know if it is recorded in any public place.

Q. Can we see the agreement?

A. Yes. That is a copy of it. (Handing.)

(Testimony of John C. Veatch.)

Presiding Examiner: Is it going to take you a little time to go over this matter, Mr. Phillips?

Mr. Phillips: I think it will take three or four minutes. [352]

Presiding Examiner: Would you like to have a recess for that purpose?

Mr. Phillips: I think it probably would be wise, rather than have everyone sit here.

Presiding Examiner: For your information, it does happen that this particular agreement was also involved in the Cowlitz case. It was received in evidence as a formal exhibit in that case. I just thought I would mention that to you.

Mr. Phillips: I want to find out if I need it as an exhibit here.

Presiding Examiner: We will be in recess for five minutes.

(A five minute recess was taken.)

Presiding Examiner: Proceed, Mr. Phillips.

Q. (By Mr. Phillips): Mr. Veatch, can you tell us where the original of this agreement is?

A. Well, it is in our—several copies of it are in the Fish and Wildlife Service. I think we have the signed copy. I don't remember how many we signed.

Q. Could you verify or certify that this is an exact copy of the original? A. Yes.

Q. You are willing to do that?

A. It can be verified. I can have the copy certified. [353]

(Testimony of John C. Veatch.)

Q. If you just certify it by saying that it is a full true and correct copy, I will accept that.

A. I will say that.

Mr. Phillips: I would like to offer this in evidence.

Presiding Examiner: Mr. Phillips, before you proceed now on this matter of introduction of an exhibit, we have had a different rule in respect to the communications received in the hearing, but on exhibits we are going to need copies. We are going to have to have the proper number of copies, that is, copies for the formal record, which means that the Examiner must have one, the Reporter must have four and all other counsel must be given copies of any exhibits.

Mr. Phillips: We will be glad to reproduce it if you will give us permission to reproduce it.

Presiding Examiner: Let's wait then and give this an exhibit number right now for identification and then you can supply the copies later.

Mr. Phillips: If we can borrow the exhibit long enough we will have it reproduced and it will be reproduced before tomorrow morning.

Presiding Examiner: All right, I'll ask the Reporter to mark this for identification as Exhibit No. 1.

(The document above referred to was marked as Exhibit No. 1, for identification.)

Presiding Examiner: The action on your offer will be [354] deferred until you are able to supply copies.

(Testimony of John C. Veatch.)

Mr. Mason: Just for the record, the Exhibit No. 1, is an agreement——

Presiding Examiner: Between the Pacific Coast States of Oregon, Washington and Idaho, respecting the Lower Columbia River Fishery Program. Is that correct?

Mr. Phillips: I think so.

Q. (By Mr. Phillips): Mr. Veatch, that agreement was executed by the Director of the Fish and Wildlife Service? A. Mr. Daily.

Q. Did he have authority under this Act of Congress to enter into the agreement?

A. I presume so. It has been recognized when the Secretary of the Interior, that he could execute it.

Q. It was not executed by the Secretary of Interior?

A. It was not executed by the Secretary of the Interior. It was executed by Mr. Daily who is in charge of the Fish and Wildlife Service and had jurisdiction over the work.

Q. Under what authority did you execute it for the State of Oregon and the Fish Commission?

A. By what authority?

Q. Yes. Do you have statutory authority?

A. Pursuant to my authority.

Q. Do you have a statute that gives you that authority? [355]

A. I don't know, Mr. Phillips as to what the particular authority is to—is conferred upon the

(Testimony of John C. Veatch.)

Director of the Fish and Wildlife Service. I think it is a matter of public record.

Q. Well, passing that, I am asking you about your authority as Chairman of the Fish Commission. By what statutory authority do you execute the agreement?

A. That I execute it?

Q. Yes.

A. I can't give you the section of the—the particular section of the statute which the Commission has created by law of the state giving general power over the propagation and preservation and regulation of the commercial fishing.

Q. You don't know the section of the statutes that gives you the authority to execute such an agreement as this?

A. No special statute is authorizing me as Chairman of the Commission to execute anything.

Q. That is what I thought.

Q. Do you recall the '49 Session of the Legislature? A. What?

Q. The 1949 Session of the Legislature?

A. I recall every session of the Legislature for the last 25 years, where the fishermen have been in.

Q. They usually have fish problems in the legislature?

A. They have fish problems ever year for thirty years that I know of. [356]

Q. Do you recall that there was a bill introduced in the 1949 Session of the Legislature attempting to

(Testimony of John C. Veatch.)

prohibit the construction of any dams on the Deschutes River?

A. There was a bill introduced in the last session of the Legislature up there.

Q. I am talking about the '49 session, not the 50.

A. Well, the '49 session was withdrawing the Deschutes River from the appropriation for power. Practically all the power interests were represented in the lobby.

Q. The Legislature refused to enact that bill, didn't they? A. I understand so.

Q. You were present at some of the hearings, weren't you?

A. Well, I wasn't present at the hearing.

Q. Was you?

A. I don't think I was. I wasn't present at the hearing. I was present at a great many of them up there, but I don't think I was present at that partic' lar hearing on this bill. I might have been.

Q. I thought you were and referred to this same agreement at that time.

I am only depending upon my memory too.

A. Well, I don't think, Mr. Phillips, that I was present that day. There was a Committee Hearing on that particular bill.

Q. But the Legislature did refuse to adopt the Legislation? A. I understood so. [357]

Q. To withdraw the water for power purposes?

A. Yes.

(Testimony of John C. Veatch.)

Q. Was the Federal Power Commission ever made a party to this agreement in any way?

A. The Federal Power Commission, Mr. Phillips, did not take part in this particular agreement that I know of. However, the Columbia Basin Inter-agency Committee, there were various Federal Agencies of which the Federal Power Commission was represented in the course of the Columbia River Program.

Mr. Mason: What was that last part of your answer, please, I didn't get the end of it.

The Witness: I said as I understand it the Columbia Basin Inter-agency Committee represented the Federal Power Commission and was present and indorsed the lower Columbia River Program. I might be mistaken on that.

It was the Bonneville Administration, the Army Engineers, the Fish and Wildlife Service and various other agencies.

Q. (By Mr. Phillips): What is the Columbia Inter-agency Committee?

A. It is composed of various agencies that have an interest in the development of power on the Columbia River.

Q. Who was representing those?

A. I was representing those.

A. I wasn't there myself, Mr. Phillips and I can't give you the individuals who were present. I think that the proceedings [358] of that particular meeting have been published. I am not sure about that.

(Testimony of John C. Veatch.)

Q. Who represented the Federal Power Commission there?

A. I don't know. I say I wasn't present.

I am not saying that the Federal Power Commission was represented there. I was informed of that.

Q. Were the Indians represented there?

A. The Indians?

Q. Yes.

A. I don't know. I doubt it very much.

Q. I notice that the Indians were not made a part of this agreement in any way.

A. No, the Indians were not made a part of the agreement.

Q. Do you know any reason why they shouldn't be?

A. I think the probable—there are probably reasons why they shouldn't be.

Q. Don't they have substantial fishing rights in the Columbia River and its tributaries?

A. They have. They have substantial fishing rights in the Columbia River and its tributaries, but they are not an agency of any of the States.

Q. (By Mr. Phillips): Wasn't the Hydro-electric Commission and the State Engineer brought in the conference on this agreement that was executed on behalf of the State in any way?

A. No. The only time the Hydro-electric Commission appeared in this as far as I know was when you made an application for them for a permit to construct this dam.

(Testimony of John C. Veatch.)

Q. I would like to ask you why you selected the Deschutes and the Metolius Rivers for rehabilitation, as you call it I think, for salmon fisheries?

A. On account of the potential production.

Q. Has there been any salmon production in the past on the Metolius above the Warm Springs?

A. Yes.

Q. Natural? A. Yes.

Q. What figures do you have on that?

A. I think—I don't have any figures personally with me on that, but there have been a run of salmon both the chinook salmon and the Steelhead, always so far as I know.

Q. What kind of a particular river bed do salmon spawn in?

A. They spawn in fairly fine gravel in running water that is not too deep.

Q. Do you find any of that kind of gravel in the Deschutes River above Warm Springs? [360]

A. Yes.

Q. Whereabouts are they?

A. They are in various places all along the river.

Q. Are there any between the Warm Springs Junction and the Junction of the Metolius for instance?

A. Between the Warm Springs Junction and the Junction of the Metolius?

Q. Yes. I am thinking of the particular canyon——

A. I don't know that, Mr. Phillips, whether there is a gravel bottom along there.

(Testimony of John C. Veatch.)

Q. There isn't any gravel bars in there, is there?

A. I think you will find that probably most of the salmon spawn above.

.Q What about gravel bars on the Metolius. Are there any up there?

A. There are good gravel bottoms up there on the Metolius.

Q. Isn't it a fact that there is pumice up there and not gravel?

A. Yes, there is a great deal of pumice and gravel on the Metolius River.

Q. Whereabouts?

A. Again I say I couldn't tell you right in particular spots on the river.

Q. Have you been on the Metolius River?

A. Mr. Phillips, I have fished in the Deschutes River for [361] over fifty years and also been on the Metolius River. Not entirely along that river, because that is impossible.

Q. Have you seen salmon spawning in there?

A. I have seen some spawning in the Metolius River. I have seen several spawning in the Deschutes. I have seen salmon in the Deschutes that weren't spawning for long periods of time.

Q. How long ago did you last see salmon in the Metolius?

A. Two years ago in September I saw salmon spawning in the Metolius River right near the headwaters where the state hatchery is located.

(Testimony of John C. Veatch.)

Q. Does that state hatchery have a rack up there?

A. Not at that time. It was just before we got it built.

Q. When did you commence that operation of that hatchery?

A. I said two years ago. It was just before we built that hatchery.

Q. When did you start operating the hatchery?

A. '48, I believe.

Q. How many salmon did you catch there?

A. I can't give you the number of eggs that were taken there. I could get that for you. They run from around, during the time that hatchery has been running there, between 150 thousand and 200 to 250 thousand, somewhere in the neighborhood. The capacity is only 300 thousand. That is all that we can handle.

Q. 300 thousand eggs?

A. Yes, at the present time. [362]

Q. How many eggs does one salmon produce?

A. What?

Q. How many eggs does one salmon produce?

A. Oh, I suppose around 4000.

Presiding Examiner: Mr. Phillips, there are quite a few questions being asked here that are bordering the technical end and biological and I am not sure that this witness has been qualified to answer these questions.

Mr. Phillips: I am not quite sure he is, but he attempted to state his qualifications.

(Testimony of John C. Veatch.)

Presiding Examiner: In the nature of fish culture and what this witness can be shown to qualify to testify about and answer some of these questions, I am a little in doubt.

Mr. Phillips: Well, ——

Q. (By Mr. Phillips): You are the Chairman of the Fish Commission of Oregon. How many hatcheries do you operate in Oregon?

A. The information you got from that report, Mr. Phillips, is a great deal more accurate than asking me. I can't give you the production and the capacity of the fish hatcheries and so forth because I don't remember them. I can't remember them.

Q. All right. Let me refresh your memory then. The hatcheries in the State of Oregon are all numbered here, 1, 2, 3, and 4 and so on, down to the last one, the Metolius number 26.

Does that mean there are 26 hatcheries in the State of Oregon [363] A. Yes, stations.

Q. Now——

Mr. Mason: For the record, Mr. Phillips, what report are you referring to there?

Mr. Phillips: This is a biennial report of the Fish Commission of the State of Oregon for 1951.

Q. (By Mr. Phillips): Now, do you know anything about the cost of operation of these hatcheries, Mr. Veatch? A. Do I what?

Q. About the cost of the operation of the hatcheries?

A. The cost is set forth there. I don't remember all those figures.

(Testimony of John C. Veatch.)

Q. For the purpose of refreshing your memory then, we have in the disbursements as shown in the financial statement attached to this report in the Division of Fish Culture, artificial propagation there are two items there of Salary and Wages and General Operating and Maintenance. Salary and Wages for the year ending June 30, 1950 is $117,053.56. Do you think that is correct?

A. It undoubtedly is.

Q. The General Operating Expenses—General Operating and Maintenance $77,718.28. I assume that is for the division of Fish Culture with artificial propagation in all of these 26 hatcheries, is that correct? [364]

A. Whatever the totals are the operation.

Q. Let me hand you this report. You see if those figures aren't correct on that statement.

Presiding Examiner: Mr. Phillips, the report speaks for itself. I you want to have that in the record as an exhibit I think we might be able to obtain copies of it.

Mr. Phillips: Well, I am going to need about a dozen copies if I put it in and I don't have the copies. That is the only one I have.

The Witness: I think we have probably 20 copies.

Q. (By Mr. Phillips): Those figures are correct though, Mr. Veatch?

A. Undoubtedly so. They are under the State Auditor and checked by the State Treasurer.

(Testimony of John C. Veatch.)

Mr. Mason: Did I understand, Mr. Veatch, that there were copies available of this report?

The Witness: Yes. I think that we can get sufficient copies here in Portland.

Mr. Phillips: I would be glad to put one in if we can get some copies.

Presiding Examiner: Mr. Veatch, do you think you could supply us with the copies that you have?

The Witness: How many do you need?

Presiding Examiner: Well, we have to have five here.

Mr. Mason: Nine is the minimum.

Mr. Phillips: You had better send a dozen copies. [365]

Presiding Examiner: Could you do so?

The Witness: Yes, we will do that.

(By Mr. Phillips): One other question.

Q. You told us about the marking of salmon. How many salmon are marked roughly every year, do you know?

A. From year to year?

Q. Yes.

A. No, I can't give you the figures, Mr. Phillips, when we brought up that marking, it is a program that has been carried on by the three Pacific Coast States and the East Columbia and Alaska.

Now, they don't mark a great many salmon because they haven't had the time and the facilities to cover the very wide field.

(Testimony of John C. Veatch.)

Mr. Phillips: I think that is all the questions I have.

Presiding Examiner: Mr. Higgs?

Mr. Mason: I think Mr. Bowles has some questions.

Q. (By Mr. Bowles): Isn't it true that the Pacific Marine Fisheries Commission coordinates all this information with respect to the marking program that is carried on by the various agencies that mark salmon?

A. Yes, the Pacific Marine Fishery Commission is the Tri-State Commission of the States of Oregon, Washington and [366] California, and British Columbia and Alaska sit in on the meetings of that Commission and while they are not official members, they do participate and take part in the work.

Q. And supply data, I presume?

A. Yes.

Q. Now, how many specific species of salmon are represented in the runs in the Metolius River?

A. Well, there are some blue-black up there, but as far as I know the principal run at the present time in there would be the spring chinook and the summer steelhead.

Q. The blueback is a local name for the sockeye salmon? A. Yes.

Q. Do these salmon once they are hatched from the egg, do they immediately migrate to the sea or do they spend some time in the fresh water?

A. No, they generally run about one to two years as a rule in the fresh water.

(Testimony of John C. Veatch.)

Q. Now is it important in the program of the rehabilitation of the fish that the good available to these fish prior to their migration to the sea be available to them in that area?

A. It is very important. If you would have a stream in which there was not sufficient fish food in it, you wouldn't get much fish production for that stream. The Deschutes and the Metolius probably produce more fish food than any other stream in the States. [367]

Q. Is that one of the reasons the Deschutes and the Metolius were selected for this rehabilitation program?

A. It was all taken into consideration.

Q. Isn't it true that the Indians are represented by the Department of Interior?

A Yes, they are in that department.

Q. Now, as Chairman of the Commission, of the State Fish Commission of the State of Oregon, has your body taken any particular position with respect to the value of hatcheries in relation to the value of natural spawning?

A. Well, the hatcheries can supplement your natural spawning, but it would require tremendous hatcheries and ponds to substitute for your natural spawning grounds.

Q. What has been your experience with respect to hatcheries in the spring on the Chinook salmon?

A. So far as I know I think the biologist can give you more information that than I can, but they are difficult to handle.

(Testimony of John C. Veatch.)

Mr. Higgs: What was that?

The Witness: They are difficult to handle. [368]

Q. (By Mr. Mason): Mr. Veatch, there have been quite a few technical questions asked you by the witnesses here——

Presiding Examiner: By the attorneys, you mean.

Mr. Mason: By the attorneys, excuse me. We have as many attorneys as witnesses.

Q. (By Mr. Mason): As the Chairman of this State Commission, are you the head administrative officer of the Commission?

A. No, I'm not the head of the administrative office; the Fish Commission of the State of Oregon is composed of 3 members that are appointed by the Governor.

The function of the Commission is primarily to determine the policies; we have an administrative head and director, and then we employ various engineers and biologists who do the actual work.

Q. You are not, yourself, a trained biologist, then, are you?

A. I am not a biologist or an expert on that.

Q. Now, you made a statement about there being no variation in flow or temperature in the Metolius River; as far as any details on that, would there be another witness who is more familiar than you are with that?

A. Well, I'd say there is—I couldn't give you the exact figures on the flow of the Metolius River.

Q. What about the temperature range?

(Testimony of John C. Veatch.)

A. The temperature of that river is pretty well down, up above the headwaters; I think it will run around 45 degrees.

Q. Is there not a range of temperatures on the river? In other words, it is not the same temperature the year around?

A. Yes, there is very little variation. The whole river comes out of large springs.

Q. Would the temperature stay uniform—how far down the river, if you know.

A. I don't know. I don't know how far down the river that temperature stays constant.

Q. On this $220,000 you told us about that is being spent on the Metolius hatchery, did I understand that that is to be spent on that hatchery alone?

A. Oh, yes; the state acquired the site and put in a dam and a pipe line, of course, and out of federal appropriations there was $220,000 that was allocated for the expansion of the state's work.

Now, of course, that will not cover all of the development of that hatchery.

Q. So that when the hatchery is completed the total cost would be around $293,000? That is, the 220 plus the 73 that the state has already spent?

A. At present expenditures, yes.

Q. Now, how big a hatchery will that be when it is [370] completed?

A. The present capacity up there that we—as far as that capacity is concerned, there is only

(Testimony of John C. Veatch.)

about 300 thousand; we expect that to run around 14 million when completed.

Q. Fourteen million? A. Yes.

Q. Are you familiar with the mechanics of how the appropriations are made by Congress for this program out here?

A. No, I am not familiar with the mechanics of the appropriations.

Q. You said a while ago, Mr. Veatch, that it was your understanding that a representative of the Commission sat in on this committee, I believe you called it, had endorsed this agreement; is that what you, in effect, said?

A. You mean about a representative of the Federal Power Commission?

Q. That's right.

A. I don't know. I merely was informed that a representative of the Federal Power Commission was present and taking part in this inter-agency committee, but I don't know about it. I wasn't there myself, and that is merely hearsay on my part.

Q. Well, did you have the same information; in other words, you had the same understanding, or from the same source, that the FPC representative endorsed the agreement? Is it your understanding that the FPC representative endorsed this [371] agreement? A. Yes.

Q. Do you recall who gave you that information, Mr. Veatch? A. I didn't get that.

Q. Do you recall who gave you the information

(Testimony of John C. Veatch.)

with respect to the participation of the FPC representative in this action?

A. I think the gentleman here—I don't remember your name?

Mr. Anderson: Fred Anderson.

The Witness: Fred Anderson; that's as I understood him.

Q. (By Mr. Mason): For the record, could you identify that gentleman a little more that has just been named, what his capacity is, who he represents, or what his connection in it was?

A. No, I'm not——

Mr. Higgs: He's attorney for the U. S. Wildlife Service, Portland, Oregon.

Mr. Mason: That's all I have.

Mr. Higgs: I have one or two questions.

Q. (By Mr. Higgs): Mr. Veatch, you were asked by counsel for the applicant here, concerning your authority for executing this agreement on behalf of the Oregon State Fish Commission; I hand you a copy [372] of the Oregon Commercial Fishers' Code, and ask you if you would like to refresh your recollection. I have the section of the Act marked there which authorizes you to execute an agreement.

A. Well, that refers to Chapter 23-A of the Laws of 1949, authorizing the Fish Commission to enter into agreements of this kind with the United States, Chapter 63, Laws of 1949.

Q. Now, there is one other question: in your cross examination in response to a question propounded to you by Mr. Phillips, you stated that

(Testimony of John C. Veatch.)

there were, I think you said, that there were 26 fish hatcheries being operated by the Fish Commission; I think you probably are mistaken and that as a matter of fact there are 16; is that correct?

A. Well, so far as the hatcheries are concerned, I didn't look at the report, there, but I think those reports—stations is what I said.

Q. Stations is what you said?

A. Yes, I think I stated that, that number of stations.

Q. I didn't want to leave the implication that there were 21 fish hatcheries, but 21 stations; is that correct, and 16 hatcheries?

A. I think that is the way they are numbered in the report.

Mr. Phillips: Twenty-six stations, and 16 hatcheries?

The Witness: Some of them are merely egg stations.

Mr. Phillips: Just so we understand what it means, though. [373]

Mr. Mason: I'm not so sure I do, Mr. Veatch; are the 16 hatcheries included in the 26 stations?

The Witness: Yes.

Mr. Phillips: Sixteen hatcheries and 10 stations in addition, is that right?

The Witness: Yes, it varies at various places where eggs—where there are simply egg stations.

* * * * * [374]

F. R. SCHANCK

was called as a witness, and having been first duly sworn, was examined and testified as follows:

Direct Examination

Q. (By Mr. Phillips): Mr. Schanck, where do you reside?

A. Portland, Oregon.

Q. How long have you lived here?

A. Twenty-eight years.

Q. What is your occupation or profession?

A. I am a consulting engineer.

Q. Of what schools are you a graduate?

A. Stanford University.

Q. How long have you been an engineer?

A. About 45 years.

Q. Licensed to practice in the state of Oregon?

A. Yes.

Q. Do you hold licenses from any other states?

A. I have been licensed in Illinois. I practiced out of Chicago.

Q. Can you give the Commission a general resume of your background and experience in engineering, in the field of [385] engineering?

A. My first contact with the Deschutes River is near the beginning of my engineering work. At that time I was an engineer in the Power Division of the Reclamation Bureau and participated in the design and planning for a power plant on the Deschutes River what is called the Reclamation Pipe, which is about 20 miles upstream from the mouth of the River. That power plant was intended to supply

(Testimony of F. R. Schanck.)

power for pumping from the Columbia River up the Columbia near the region of Umatilla and that area that is now irrigated from the Umatilla River.

Later on in my work for the department as power engineer I made a report on all of the hydro-electric potential of all the Indian Reservations in the United States which included Warm Springs Indian Reservation.

Then in 1922 I was at an engineering office in Chicago and I was asked by some investors to investigate the possibility of producing power on the Deschutes River in the region under consideration in this present application.

I made a trip or two out here and the project looked favorable and I moved out here in 1923 and when—and in 1923 to 1931 I devoted nearly all of my time to the development of that project, the securing of water rights, land rights and the securing of the necessary license from the Federal Power Commission and a very complete investigation as to why—as to what the—as to the water supply. At that time there had been a [386] decided decrease in the precipitation in this region so that several power plants which had been planned ten or twelve years previously were found to have less power than anticipated and that study and those investigations gave me information that probably would be desirable to put into the record when you consider any of these matters that have been discussed.

The Deschutes River really has three different distinct parts. First is the river tributary rising in

(Testimony of F. R. Schanck.)

the east and the flow there is very variable because it is largely fed from the upper reaches of the winter snows and rains and the region is not one of heavy precipitation.

Then there is what is called the main Deschutes which comes down from the Cascades through Bend, Oregon, and is fed by heavy rain falls snow from the east slope of the Cascades and then there is the Metolius River which has three principal sources making up its discharge. About a third of it comes from the springs at the foot of Black Butte and is tributary to it. About half of it comes from the southern slope of Mt. Jefferson which has glaciers and is very precipitous. There is a fall there of three to four thousand feet in just a few miles towards—horizontal, then the other flow comes from a number of tributaries Suddens Lake and some other streams of that character.

The springs alone are the greatest source of its discharge and while I am not an expert in salmon culture for many years I have to do with fish in building dams and power plants during [387] the time when the state of Oregon had a planning commission I was on the advisory committee for power and made extensive studies in connection with the Bonneville project and cooperated with Dr. Holmes who was sent out here as being the best qualified to advise on the methods of handling salmon that any obstruction such as Bonneville would give. Most of the Metolius River is not adopted to salmon breeding.

(Testimony of F. R. Schanck.)

The slope of Mt. Jefferson is very steep and as I said pretty near half the water comes from that and of course the big spring at the base of Black Butte, that particular place is adapted to salmon propagation but it isn't extensive. It isn't like a lot of tributaries that go off in different directions.

As far as I know there is no evidence—I have been at three hearings in connection with this matter, twice before the state Legislature and once in the Senate and once in the House and once before the Fish Commission in which the fish interests presented evidence, and very little evidence, that before the propagation of the salmon was begun by the Fish Commission which its officers told me was started in 1937, there was no evidence of regular salmon runs up the Metolius River. That matter of what is the condition isn't one that I have just imagined, it is the result of several very extensive investigations [388]

* * * * *

The Witness: I would like to give a little more information as to the physical conditions related to this. [400]

As the development of irrigation continued in the Deschutes Water Basin, the total flow of the Deschutes above Bend was diverted for irrigation, so that in the years or normal rainfall the river is almost completely dry down just below Bend except for a small amount of water, which as I understand it, the State Engineer requires to be allowed to continue in order to prevent a nuisance.

(Testimony of F. R. Schanck.)

The Crooked River is the same way.

But, as these 2 streams near their confluence, they are fed by a group of very important springs, so that when the Deschutes River is substantially dry and the Crooked River is substantially dry 20 miles above its mouth and the Metolius River flows its normal low water flow, which is about 11 or 12 hundred cubic feet per second, the discharge in the Deschutes River is about 3500 cubic feet per second; so, it is substantially 2,000 cubic feet per second that comes in there from the springs, and that condition of the Crocked and the Deschutes above the confluence has made it impossible for any salmon runs to continue up there, and that doubtless is the reason there aren't the salmon that there are reported to have been before.

And, as I have stated, the Metolius River, I have consulted with many people who are familiar with that river from before the beginning of the century, and I never have found anyone who said there was any substantial amount of salmon going up there before the State Fish Commission began to plant them, or their [401] office told me in 1948 they began the culture of salmon there in 1937; and there has been some return salmon.

I was up there, I think it was 3 years ago; the gentleman in charge of the fish hatchery told me that they had taken 82 female salmon that year, and I'm not sure but what it was somewheres in that neighborhood, but there is no evidence that I have

(Testimony of F. R. Schaneck.)

heard yet that there was a natural run of salmon passing the Pelton dam site in the last 50 years.

I have been at that part of the river probably every—nearly once a month for at least 8 or 9 years, between 1923 and 1931, and I have talked to many people who are very familiar, such as Mr. Campbell who testified here Monday; he operated a ferry across the river for many years and never saw a salmon at all; and there is no evidence that I have heard—and I was at 3 hearings—that there were salmon runs up the Metolius River before they were propagated; of course, there may be occasions when salmon go up. A whale came up the Columbia River and the Willamette, and sporadic conditions of that character; but, I feel that it would be a great injustice to the people of Oregon to destroy or handicap a great natural resource such as the power section of the Deschutes along here as it is, in order to possibly help some recreational group, or even add to the feeling that there might be some more fish than there would be after the dam were built.

Now, this particular section of the river where this lake [402] will be in existence after the Pelton Dam built is one of the most inaccessible sections of the river below the mouth of the Metolius.

I have been over every foot of the river except part of that, and I've swam across the river many, many times; and where we had our camp was right at the foot of a riffle, and one of the engineers that I employed was there practically every night for 30

(Testimony of F. R. Schanck.)

years—I mean, for 3 years—that was his daily occupation.

One time he had a cook who was an inveterate fisherman; in fact, he produced fish so much the boys threatened to throw him in the river if he didn't quit fishing; and nobody ever heard of a salmon being taken in that part of the Deschutes in the last 40 or 45 years, and if there had been salmon runs going up the Metolius somebody would have observed them because they didn't fish just for the sport of fishing; they fished to get something to eat, and many of the fishing methods made traps illegal when they got the fish.

Just below this Pelton Dam site, is the place where the Madras people used to have their fish fries; along about the middle of May they would notify the community—only a few hundred people then, in the town—on a certain day they would have their fish fry.

And they went to the river and fished in their spare moments and put the trout that they caught in their refrigerators and [403] then they had a big steel plate, bigger than the top of that table, out under some trees and they had a fire there and furnished everybody that came fish and coffee, until finally the new highway was built in there from Portland. A whole lot of Portland people came out and they had to go and buy salmon from some place to help feed all the crowd, and they decided that was too much, so they quit that.

But those people were fishing, dozens of them,

(Testimony of F. R. Schanck.)

and as I say, I never heard any of them testify who knows that country that there are any salmon runs up the Deschutes River and up the Metolius River beyond this point.

But, downstream about 20 miles the Warm Springs River enters and that river does have migrations of salmon, and they are intermittent, and I assume that it probably was due to the fact that in years of very deficient snowfall and rainfall that the heat of the water in mouth of the Warm Springs River becomes sufficiently great by reason of these springs, not being adequately diluted, that the fish don't go up, because it isn't a sure thing that they will go up the Warm Springs River.

But, that is 20 miles below this point that we are talking about. [404]

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Mr. Higgs: Well, generally. He has offered himself as an expert.

Mr. Mason: Mr. Examiner, I object to that question. There is no foundation for it.

Mr. Higgs: This is cross examination.

Mr. Mason: Well, he has testified only as to the one project. [427]

Q. (By Mr. Higgs): Have you seen the plans for this particular project, Mr. Schanck?

A. I haven't looked at the details of the plans as they were finally designed. Of course, the principal is the same, the same generally as I worked it out myself twenty years ago.

Q. About the same general plan?

(Testimony of F. R. Schanck.)

A. Yes.

Q. Had your work, Mr. Schanck, been largely for the power companies?

A. No, it has been—in fact I haven't been on the pay roll of a public utility since my first two years out at college.

I have been doing work for the Government and then this Columbia River—Columbia River Power Company which is not a public utility. They had certain industries that they wanted to supply and I suppose supply wholesale to public utilities the same as some logging operation, some lumber mills, but they were not a public utility

Q. I understand from your testimony in answer to a question put to you by Mr. Bowles that you haven't made any special study of the salmon population of the Deschutes River?

A. Oh, yes, sir, I have.

Q. What special study have you made?

A. At the dam site.

Q. Do you mean at the present dam site? [428]

A. Yes. During all these years from 1923 to 1931 I was there pretty nearly every month and sometimes days at a time we did diamond drill borings from barges out in the river so we had to be back and forth and we established a cable crossing to go from one side of the river to the other and had a boat to go across and that cable car was also in use for making stream measurements which going out on the water, we furnished the state of Oregon and the Geological Survey

(Testimony of F. R. Schanck.)

of Water Resources so that many days of every year men; from time to time myself would be working at it, crossing the river on the boat at a speed of about 2 hours to cross, dropping the current meter every ten or twenty feet and lots of times you could see clear to the bottom so that for years at a time that it was crossed by man observing whether there was any salmon going up there. No one ever observed a salmon to the best of my inquiry. No one ever heard of any one seeing a salmon during all of that time.

They would go that way if they were going up the Metolius. I told you this morning about observing the Metolius. The Metolius is much more inaccessible, except the very upper end which is only as I said about a third of it and in the Deschutes they would have all have to go by there in—and so far as I have heard no one ever saw a salmon going by there during the last thirty years.

Q. It is your testimony then that there are no salmon or comparatively no salmon in the Deschutes and the Metolius Rivers, [429] is that correct?

A. Yes, sir, except that it has been established by the Fish Commission in 1927 as I testified to that they planted salmon there and according to what they told me there has been some salmon up there since then. Of course, intermittent salmon might go up there once or twice in three or four years, but what I understand the objection is that

(Testimony of F. R. Schanck.)

construction of a dam there will interrupt a salmon run. That there are salmon and have been salmon going up there in quantity so you could tell it was a salmon run, but otherwise there wouldn't be a natural resource, it would be just a sporadic fish that wouldn't have any relation to any construction of a dam at all. [430]

* * * * *

Q. Have you made any investigation in connection with your professional duties of the recreational values in the surrounding Deschutes and particularly at the location where this Pelton Dam is to be established?

A. It depends on what you mean by recreation. If you want it to mean what was specified here, there that the great inaccessibility and difficulty in getting there as being an added recreation attraction, why of course, we ought not even cut the rocks and let them climb down, but if you mean accessible by large amounts of people who couldn't get there or didn't join the Izaac Walton League or anything like that and had to get around the best they can why this will add greatly to the facilities for recreation.

Q. This would? A. Yes, sir. [435]

Presiding Examiner: You are speaking of the project now?

The Witness: Yes. [436]

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T. M. ROBINS

was called as a witness and, having been first duly sworn, was examined and testified as follows:

Direct Examination

Q. (By Mr. Phillips): Where do you live?

A. I live in the Portland area, near the city of Oswego.

Q. How long have you lived there?

A. Since I retired from the Army about five years.

Q. Have you followed any profession or occupation in life?

A. Well, I went to the military academy and graduated in the Corps of Engineers in 1904. I retired in 1945 during which time I served in all capacities from Second Lieutenant to a Major General in Government work.

Q. At the present time you are a retired Major General? A. That is right.

Q. During your career in the Army, have you been engaged extensively in engineering work?

A. Yes, on civil work with the Corps of Engineers. That would include harbor improvement and flood control. [457]

* * * * *

The Witness: I don't need the order in my story to show, I only wanted to show why we went to the Fish Commission.

Mr. Mason: I understand that.

The Witness: We applied to the Fish Commission in accordance with the order and they took

(Testimony of T. M. Robins.)

it under advisement. We held several conferences with them and we asked the Fish Commission why fish on the Deschutes couldn't be salvaged, as they called it, in the same way they are being salvaged in the Willamette [462] Valley on the north fork of the Santiam and the middle fork, in other words, by construction of hatcheries and the collecting of eggs and fish and releasing fingerlings downstream from the dam. The Fish Commission took that under consideration and finally furnished us with a copy of a memorandum by their experts outlining the facilities that would be required to handle the fish on the Deschutes, at the Pelton project in a similar manner to the way they are being handled on the tributaries of the Willamette.

The facilities outlined are the same that we have offered to furnish in our application in addition to the—the only difference being that the Fish Commission estimated the cost of operating the facilities at $300,000 and we offered to furnish or supply not to exceed $100,000 per year. That $100,000 is to cover the cost, the additional cost of the operation of the Metolius Fish Hatchery with the Pelton Dam in. They are going to operate the Metolius Fish Hatchery anyway and the only additional cost involved by the Pelton Dam is the egg taking station down below the dam and the tank truck facilities for transporting the eggs and the fish back and forth from the hatchery to the station below the dam.

(Testimony of T. M. Robins.)

These facilities the Fish Commission estimated to cost $750,000, as I recollect it and we raised it to $1,000,000 because I don't think you can build them for less than a million.

Now, after we got this plan of the Fish Commission—the [463] suggested plan—we couldn't see our way clear to go into such an extensive expenditure for fish. We hadn't at that time enough engineering facts to know whether we could do it or not.

The Fish Commission as well as the Hydroelectric Commission indicated to us that they would object to the fluctuation of stream flow through the power operation. This would involve the construction of a re-regulating dam. We weren't able at that time to finance a re-regulating dam or anything of that kind, so we waited until the next thing would be or what we could do and requested the Federal Power Commission to hold our application in abeyance until we could get more information to decide whether we could meet the suggestions of the Fish Commission or not.

In the meantime the Korean War broke out and various plans were being considered for increasing the power capacity out here for war production and the Pelton Project began to be mentioned as one possibility and we were told by the Defense Electric Power Administration that they would welcome the construction by private utilities of all the projects that they could get going. In response to that the Portland General Electric

(Testimony of T. M. Robins.)

Company in view of the emergency and in view of the fact that the National Defense Laws would permit accelerated depreciation of a plant built mostly for war purposes, reinvestigated the proposition at Pelton, re-estimated the cost of putting in a re-regulating dam and providing the fish facilities and submitted a [464] revised application, which is the first supplemental application.

The project as originally applied for contemplated of an installed capacity of two units and no re-regulating dam, the two units would have a combined capacity of 75,000 kilowatts.

The project as modified called for three units, 36,000 kilowatts each, and a regulating or re-regulating dam about three and a half miles down the stream, facilities in the re-regulating dam for trapping fish and getting them up into holding ponds, an egg taking station below the re-regulating dam at a site satisfactory to the Fish Commission with an adequate water supply, egg taking station and quarters for the personnel to man the egg taking station, a fleet of tank trucks to transport the eggs, after they were eyed out from the egg taking station to the Fish Hatchery at Metolius, the expansion of the Fish Hatchery at Metolius to a capacity of 14 million eggs a year and of course a stipulation that the flow of the stream would be maintained at its natural flow at all times. [465]

Q. (By Mr. Phillips): Are these changes, then, all incorporated in the supplemental application?

(Testimony of T. M. Robins.)

A. Yes, they are. [466]

* * * * *

Q. You spoke of some proposal to increase the space at Metolius Hatchery to the ability to handle 14 million eggs, now did you plan for one million dollars for additional fisheries include the proposal to increase to that extent or was the State Commission going to have to expend that money from other sources?

A. No, the Fish Commission estimated that it would cost 750 thousand dollars to build the egg taking station, I have the estimate right here, and curing ponds and holding ponds to expand the Metolius Fish Hatchery to a capacity of 14 million eggs and 10 million fingerlings and to supply the other things and the total estimate came to 750 thousand.

I raised that to not to exceed a million dollars so as to be sure that we could be sure that we could build and supply every facility that they suggested they should have there. [481]

* * * * *

Q. (By Mr. Higgs): General, you understand I'm not an engineer, for the record, but primarily for my own information would you be kind enough to explain how this re-regulating dam works? Until this project, I'll confess I never heard of one, so if you would, please, sir, for the record, and tell me what the effect of it is.

A. Well, one way you can operate, when your load is light, you can shut down the power plant

(Testimony of T. M. Robins.)

and the re-regulating dam will be full, and out of the re-regulating dam you can release whatever quantity of water is coming in; in other words, the natural stream flow.

And you carry the natural stream flow with the water in your re-regulating dam while your units are shut down in the power plant; then in the morning when your big loads come on and everyone turns on their heaters and everything, you start up your units and you use twice as much water, say, as the natural stream flow, from the storage in your upper reservoir; and then you just keep that operation going, so that you always have water enough in the re-regulating reservoir to keep the natural flow of the river below it without any fluctuation.

If you turned on—well, you take the average stream flow of the Deschutes is about 4200 second-feet; that's about the way it runs; and if you put 2 units in—well, 3 units—it will take something like 11,000 second-feet of water to operate [488] all 3 of them; and you jump your flow through the turbines from 4200 up to 11,000 without re-regulation, you would raise the water in the Deschutes River about 4 feet, below the dam.

Is that clear now?

Q. Yes, sir.

Now, as I understand it, to regulate the fluctuation, in order to prevent fluctuation in the lower stream, is that right?

(Testimony of T. M. Robins.)

A. To prevent fluctuation from the operation of the power plant.

Q. I see.

So, when the re-regulating dam is installed and operating, it will have no effect on the lower river, is that correct? A. That's right.

If the Good Lord put 11,000 feet in up above, then we will put it in down below.

Q. But that dam will keep it in there?

A. Yes.

Q. Well, what results, General, on the flow below the re-regulating dam when there's a minimum flow exists in the Deschutes?

A. Just whatever comes into the reservoir up above there will be released.

Q. Regardless of the time of the year, or the natural conditions, this re-regulating dam, as I understand, will take care of that the same as nature took care of it before it was installed and the dam was installed? [489]

A. Yes; the flow will be exactly the same with the dam at all times—that is, as near as human people can operate it. [490]

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EDWIN T. HODGE

was called as a witness, and having been first duly sworn, was examined and testified as follows:

Direct Examination

Q. (By Mr. Phillips): You are Dr. Edwin T. Hodge? A. That is right.

(Testimony of Edwin T. Hodge.)

Q. Where do you reside, Dr. Hodge?

A. I live in Portland.

Q. What is your occupation? [507]

A. I am a consulting geologist.

Q. Of what school or schools are you a graduate?

A. I have a Bachelor of Science Degree in Geology from the University of Minnesota, a Master of Science Degree in Mining and Geology from the University of Minnesota and a PhD Degree in mineral deposits and engineering geology from the Columbia University, New York City.

Q. How long have you been engaged in the work of Geology?

A. By July 1st I will have been engaged in the practice of Geology for 40 years. [508]

* * * * *

Q. Now, with respect to the pool behind the dam, how accessible is that to the general public at the present time?

A. Well, in making a survey of the pool we had to use all kinds of trickery to survey the banks of the river. My boys, that I think are as courageous as most gentlemen, they just refused to attempt to go down along the river. We had to survey it by indirect methods; that is, for a mile, or about a mile below the site.

I talked to the local folk, and they tell me that they never fish above that site for a distance of several miles.

At the time of my original survey, it became

(Testimony of Edwin T. Hodge.)

necessary for us to cross the canyon and it was a real mountaineering job. You have to seek out what mountaineers call chimneys, and then you give a man a half a day to do one wall of the canyon, or something like that.

There is a stretch in there, oh, of 10 miles, where you have to know your locality very well to know where you could get down to that canyon, and you might find at the bottom a ledge where you could reach, but from the standpoint of traversing up and down that canyon, that, I think, is practically [517] impossible on foot.

Q. What about access roads to the rim of the canyon, at the present time? How many are there, if any?

A. There are no access roads at all, except in the range of what I call Campbell Canyon, which is several miles below the site. There is no road that comes down over the wall of the canyon at that place, but then for some 10 miles north of that there are no roads that even approach the rim of the canyon.

Q. You mean 10 miles to the south?

A. Ten miles to the south, about 10 miles south.

* * * * *

Q. (By Mr. Phillips): And on the sides of this canyon, Dr. Hodge, are there plains on the side there that have any significance?

A. You mean above the rim?

Q. Yes.

A. Yes; there is a plateau surface.

(Testimony of Edwin T. Hodge.)

Q. Plateau?

A. Plateau surface; one carries the name indicating [518] plains or plateau, but after you once get above the rim you are at practically level surface.

Q. This river has cut, then, into a plain; that's what it amounts to? A. That's right.

Q. How deep is the canyon there at Pelton site and above? From rim rock down?

A. At the site, it's about 1600 feet deep.

Q. The canyon? A. Yes.

Q. And farther up the canyon, upstream, does that decrease from the rim to the river?

A. No, the upland surface rises along with the river at about the same rate until, well, beyond the junction with the Metolius.

Now, of course we speak of that rim—they have in that country what they call rim rocks: you go up to one rim and you go over a ways, like on a bench, and then you rise up again and then you go back, and that general level there is about 2400 feet at uppermost level, at the site of the canyon; so, you do have level terraces or steps in the wall of the canyon.

Q. Are the terraces available for access down to the place where you get the actual rim of the lower canyon?

A. Yes, many of them are—cattle trails.

Q. If the dam was built and the river flooded behind [519] the dam for some miles in a southerly

(Testimony of Edwin T. Hodge.)

direction, would people be able to have access to that lake behind the dam, in your opinion?

A. Well, yes; I might call your attention to the fact that the Oregon Legislature, at the last session, passed a bill ordering the State Highway Department to build a road along the Deschutes Canyon, using the grade of the old railroad, which extends the entire length of this canyon, which, if they do, will mean that there will be a highway, a State highway and not a primary road, a secondary road, that would take off from a primary highway near Warm Springs and continue south for a distance of about almost as far south —it goes up Willow Creek. That's about 6 or 7 miles, so that the entire reservoir—from that grade and down into the lake level, there are a number of talus slopes that break off that go down to the lake level; I don't know, I never gave the matter any thought at any time, but, oh, I suppose there's one every thousand feet, something like that.

Q. Is the railroad built on one of those benches?

A. The railroad is cut into solid rock; it's hewn right out of the solid rock and would make an excellent roadbed. [520]

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Cross Examination

Q. (By Mr. Bowles): Did you ever try swimming in the Metolius? A. Yes. [533]

Q. Was it a colder stream?

A. Well, Mr. Bowles, may I generalize this thing?

(Testimony of Edwin T. Hodge.)

Q. Surely.

A. The Metolius is the most remarkable river in the entire world; it's famous the world over for the fact that it has the most uniform flow of any stream that has ever been studied, and has the most uniform temperature of any stream that has ever been studied.

That fact is cited in report after report on rivers by various organizations. There are reasons for that; I would be glad to go into those, but if I may generalize and not testify from my own amazement about the temperature in those days—I was interested in rocks.

Our geological interest was directed entirely toward getting a supply of food, and as somebody said here the other day, I don't think my boys were much concerned about how they go it. They used all methods to secure food.

And that's as far as it went.

Q. I see.

But, it is generally a pretty cold stream, isn't it?

A. That's right; it is a spring-fed stream. The only portions of the Deschutes system that are not spring-fed are—the Crooked River.

Q. Now, you speak of this thermocline, Dr. Hodge, and as I understand it, that is the point where the water below [534] that particular level stays more or less at the same temperature from there to the bottom, and it radiates from there on up to the top where it is quite warm, and then on down to this particular stabilized level?

(Testimony of Edwin T. Hodge.)

A. That's right, except for 2 periods of the year, in the fall and in the spring, when there occurs in great many lakes and reservoirs the phenomenon known as overturn; as the temperature of ice melts in the springs and the water approaches the temperature of 39.2 Fahrenheit, the water reaches its greatest density; that's when the ice is melting, and the surface water is heavier and it melts and displaces even cold water that is at the bottom, and produces the overturn.

Then again, in the fall when the temperature is falling, you reverse that phenomenon, but in a river like the Deschutes where the temperature is--where only once in a great many years do you have any freezing, and where the water is like these refrigerating system used in cities these days, by means of deep wells, the Deschutes is maintained at almost a uniform temperature by the fact that when the water rises it soaks back in these volcanic rocks, goodness knows how far, maybe miles—and incidentally, if I may interject what to me is an interesting point, here, in regard to General Robins' testimony yesterday, when he was testifying as to the acreage of the pool, I think he is going to be agreeably surprised to find that the range of drop is not going to be 6 feet, when when he fills his [535] pool he is going to have water soaking back there for maybe 2 miles into these rocks; and when he starts drawing it down there is going to be water coming in from the sides.

Maybe that would double his acreage; that is

(Testimony of Edwin T. Hodge.)

one of the things that is based upon thinking of this sort; we can't prove until they actually build an experimental reservoir to try it out, but I'm gambling that they are going to discover that they've got a lot of storage there beyond storage that they anticipate in a simple rockbound canyon.

Now, that's an interjection, if you understand; I wanted to get out of my system something that I've been thinking about.

Now, then, since water does soak back into the country rock, and that is something that many other people know besides myself—I don't sit here and claim to be the first one to have observed that—and it takes on the ground water temperatures, then when the river falls and that water comes back to maintain an almost level, almost steady elevation on this water surface, it brings back into the river those cool waters, and that results in a remarkably uniform temperature for that stream. [536]

Q. Do you think this thermocline is going to be so marked in this?

A. Oh, yes, this thing that I am talking about, we build a dam and we would raise the water level 150 feet for a distance of seven miles. The effect of that is going to be profound.

In the first place, this or the spring that I am talking about don't come in at the river level. They come in at various elevations. As a matter of fact, down at Maupin, they have a power plant

(Testimony of Edwin T. Hodge.)

hung up on the side of a hill fed by a spring. It has been going for years.

So, you have these large springs coming in at various elevations. Now in this canyon there is an old fashioned Dutch Oven baking effect, when the sun shines on this wall, those black walls absorb all the red rays and make it so hot you can't put your hand on it in the summer time. This spring water flowing over those hot rocks is warmed up and enters the stream. In the afternoon the other walls repeat that, but those rocks hold the heat a long time and that canyon is a sizzler in the summer time.

The water entering the present stream is warmed by reason of that. Secondly, the river is a tumultuous river, it is leaping and jumping all the way down and the water is being thrown and you can see standing waves three feet high in many places in that river, standing waves, just hopping around, that water is being tossed into the air that it is so hot the natives [537] like to always refer to the fact that is rattlesnake country so this water being tossed into this hot air in the summer time; only in the winter time we have the reverse of that; and thoroughly mixed with this hot air. That is the stuff that goes on in that stream.

That incidentally is what we can detect. If he can hold himself in that water, he can tell the difference, but if you have a very quiet pool you would be freezing down here and very comfortable up here if you are swimming. Now when we build

(Testimony of Edwin T. Hodge.)

the reservoir we have a quiet surface, the warm waters come in full of air and they rise by reason of their lightness, they rise up here and gradually lose their air.

The cold water coming in immediately goes down towards the bottom and stays down there at the bottom, so we create, as has never been created before in this canyon an entirely different situation, just the opposite of what nature is maintaining there.

I say on the basis of theoretical grounds, and I can give you a good many citations and authorities who have made studies on this matter, Boulder Dam and the Hawaii Reservoir over here and at many other places where details studies have been carried on for years to show by theoretical considerations as well as by actual direct observation that the deeper levels of this reservoir would have cold water and will act as a device to separate the cold water from the warm water. The warm water will be a blanket and water is a very poor conductor of heat, so we have a [538] little layer of water up there that is stagnant or stable and undisturbed and it will act as a thermo-blanket. It will keep this lower water from being heated by the sun's rays.

Q. What I am trying to determine is where in the studies that have been made is this stabilized layer of water likely to occur with respect to depth?

A. Well about a hundred feet to the thermocline

(Testimony of Edwin T. Hodge.)

in the average lake. You are asking for a very general idea.

Mr. Mason: May I have that last answer again?

The Witness: About a hundred feet and when I state that that is a very general answer. Each lake is different in itself in that regard, but that is a general statement and it is general.

Mr. Phillips: That is at the bottom or from the bottom or the top?

The Witness: That is from the surface down. Below that the water will have almost a uniform temperature.

Q. (By Mr. Bowles): There was some mention of this railroad grade that goes into the canyon at the present time. As I understand that it will be above the high water mark of the flooding?

A. Oh, yes, sir, yes.

Q. It will be substantially above that?

A. That is right.

Q. Now, in connection with that situation, you make a [539] remark with respect to slides or shutes that now make it accessible down?

A. That is right.

Q. How far down do those go?

A. Right to the river bottom.

Q. The river bed? A. That is right.

Q. That is the way they presently go down?

A. Yes, that is the way the fishermen fish in the river.

I don't recall exactly what I said, but I thought I stated that in order to follow the river edge

(Testimony of Edwin T. Hodge.)

up the canyon with a survey party would be found impossible, we would have to use indirect methods.

Fishermen also find, I am told, it is impossible to traverse so they walk this railroad grade, and come to one of the slopes, their favorite one, whatever it may be, they go down there and at that particular point do their fishing and when they finish fishing they climb back and use the railroad grade to return. They don't try to traverse the canyon.

Q. Generally they are quite numerous through that stretch?

A. I would say there is one about every thousand feet.

Q. So the canyon isn't exactly inaccessible, there are some parts of it that is excessible?

A. From the railroad bridge but not from the rim. These talus slips don't occur at the rim. The general picture of the [540] talus slope is here a gully with very steep walls, you might go down a few feet, but then you come to one of these slips 60 feet high and you are stuck. At the bottom of that what was taken out of this cut is now hewed down to the bottom in a great big talus slope.

Q. The only way that this—proposed way to make it accessible is by way of the old railroad grade and a secondary road?

It wouldn't be a practical thing to try to run a road into the rim of the canyon, you would still be probably a half mile away from it?

(Testimony of Edwin T. Hodge.)

A. No, there is one place where I think you might go down. It is at Willow Creek, the old timers used it. I think cowboys came down on horses down Willow Creek and a road might be brought down there if there was something to bring the road down to, but I don't see the economic necessity; if the State Highway Commission follows its instructions and builds a highway on this railroad bridge, it will be deluxe. That is just what the average fisherman like, to drive some place and sit on his car and fish with a line. I can't appreciate it, but I belong to an older generation.

Q. As you see it the only purpose that the highway is proposed at the present time is so that recreation figures into that area?

A. I don't know. I think not. I don't know what inspired [541] the legislature, all I know is that one morning I read that in the paper. What started them off except that everybody in there keeps saying, as you would say yourself, walking on this old railroad grade, it isn't the same as a road. If somebody says that long enough they will have one.

Q. Is there any need for a road from the standpoint of serving the population?

A. No, I don't think so, if they build a road in the lower section of the canyon—well, now wait, there maybe something deeper than that than an ordinary geologist would comprehend, but now that you bring it up I begin to see a little light in it.

There are a number of people that have been

(Testimony of Edwin T. Hodge.)

having a battle with the railroads on hauling lumber out of various points and there is a bunch of lumber mills set up in that canyon now and they are going to have a pollution problem too, which I haven't heard discussed by any one, and those fellows might be inspired with a road. However, that has nothing to do with this situation. They are downstream.

Q. Down below this? A. Yes.

Q. Well, can you——

A. But I think, no doubt, that as soon as this dam is built there will be a strong demand for a road to traverse the length of this lake out from the present Warm Springs-Madras Highway which is the number one prime fast highway. [542]

* * * * *

Q. I see.

Doctor, concerning the accessibility of this particular area in question, is there not—I believe this has been covered; if it has we'll forget it —is the railroad grade now used by automobiles within close proximity to the dam site?

A. Well, Mr. Campbell, who never walked anywhere, he drove his car over a portion of the railroad grade, and the last time I was up there we did the same thing. But you can't drive a car; there's been too many boulders roll down on the grade. If it had not been for the spoilage of the old grade, there would be many miles where you could drive a car. It's a beautiful grade; it's just a fine grade, a perfect railroad grade. It wouldn't

(Testimony of Edwin T. Hodge.)

be hard to clean that out, as a matter of fact; you could go along there with a dozer about 10 miles a day; and you would have a good secondary road now, just fine. [549]

* * * * *

Q. Now, Doctor, will the surface of the pool behind the dam be warmer than the surface of the river is at the present time, in your opinion?

A. I don't think it will be as warm.

Q. Not quite as warm? A. No.

Q. It will have a tendency, then——

A. I can give you reasons why I think that, if you wish to have that.

Q. If you care to.

A. Well, the reason the river water is warm is, to repeat again, the fact that there is water constantly being splashed into warm air, and the churning in of that warm air into the water, and that warms the water.

Now, when it reaches the reservoir, we'll say, for the sake of discussion only that we have a glassy surface here on a calm day; now, under those conditions there's none of this splashing at all, so the only heat that water can now receive, is the heat from the sun, or the reflected red rays from the valley walls, the heat waves from the valley walls.

Now, even with ultra violet light there is a 50 per cent loss within a matter of about 60 feet in the penetration of ultra violet light, and in red

(Testimony of Edwin T. Hodge.)

rays, they are almost entirely absorbed in the upper 2 feet.

So, the result is that if we can go out on that building there, and put a layer on that building of 3 inches of water—and you've seen that happen; you know they do that—then we get a very cheap thermo blanket to keep that building cool in [557] the summer time, so there's a lack of penetration of the red rays, and also, water has a very low index of refraction, 1.33, and therefore, the angle of inclination has to be very steep for those rays to penetrate at all, and that's why you get sunburned on the water: almost all the light comes right back at you and burns you.

Then, there's the third point, and far more the most important point, and that is, all this heat, red rays, are transformed into vapor, almost entirely. So, as we warm that water up, even if it's down almost to freezing, warm it a little bit, that heat instead of being absorbed by the water and warming the water, is transformed into vapor, into latent energy, and goes off into the atmosphere as vapor, and the water remains almost at the same temperature.

And, so, for those three reasons—as you as a boy discovered that, I am sure—the surface of the lake, the top layer of a foot or so, is warm; and down below that it's cold.

Water is a very—then there is a fourth reason, and that is so long as there is any air in this water, its thermo conductivity is decreased by about

(Testimony of Edwin T. Hodge.)

50 times, and I brought some figures—I anticipate questions of this sort, and I can cite you those out of reliable reference books, if you care to go into them; I don't carry them in my head—to substantiate this generalized statement.

Well, I expect that actually the surface water of this [558] reservoir will be cooler than the surface water of the river.

Q. By the same reasoning, then, the waters below the thermocline would be colder than it is in the river at the present time?

A. It's been the coldest water that's been selected off, but it won't be any colder; it's just as cold as when it comes into the reservoir.

Q. And through its escapement to the lower part of the dam, it will be as cold?

A. That's right; at Pelton site today—if I may speak purely in theory—if we were to go down that river today and measure the temperature and determine averages of the river temperature above the present site and below the site, we would find a certain change in temperature, getting warmer all the way down to the Columbia River.

Now, theoretically, after we put the dam in and if we were then to measure the same body, or go the same distance longitudinally, we will find that the water leaving the dam and feeding on downstream to Mecca Bridge, we'll say, will be cooler water between the dam and Mecca Bridge in the future after the dam is built than that water is at the present time by 4 or 5 degrees, maybe.

(Testimony of Edwin T. Hodge.)

And that should, I would think, be a very beneficial result from the standpoint of the holding pools that they are talking about; they'll be able to draw off from this dam a supply of [559] cold water which at the present time, if they wanted to do that, and I heard testimony here the other day that the Warm Springs Indians had this in mind themselves, it occurred to me at that time where are they going to get the cold water for their ponds?

The only way I can think of them getting cold water, is not out of that river, but by a deep well, because they'd have to put some sort of screen in the bottom of that river and suck the water from the very bottom of that river into the holding ponds to get water cold enough, as cold as they'd like to have it; whereas, under this condition they will be able to get their water from the base of the dam. [560]

* * * * *

CECIL PEARCE

was called as a witness, and having been first duly sworn, was examined and testified as follows:

Direct Examination

Q. (By Mr. Phillips): You are Mr. Cecil Pearce? A. Yes.

Q. Where do you live, please?

A. Long Island, New York.

Q. And how long have you lived there?

A. About since 1945.

(Testimony of Cecil Pearce.)

Q. Have you a profession or occupation?

A. Yes.

Q. And what is it?

A. Civil engineering. [570] * * * * *

Q. Would you say in a general way whether or not the Deschutes has a rather constant flow of water?

A. Well, the Deschutes is notorious; even before I ever came to this country I knew the Deschutes was one of the most constant streams in the whole United States.

Q. Did you make any study of water temperatures in connection with the Deschutes project?

A. No, not in connection with the Deschutes project.

Q. Do you have any knowledge of the water temperatures, and what effect the building of dams has upon water temperatures, in the pool behind the dam? A. Yes.

Q. And will you state what experience you had with respect to that?

A. Well, any dam designer sooner or later gets into the problem of water temperature on the upstream face of the dam, because as cold water comes up on the dam and cools it off, and the cooling causes shrinking, a tendency toward tension; so, if you deal with that long enough, you will invariably get into that phase; not because of fish but because of your own interest in the temperature of the water.

So, I became interested in it and years ago be-

(Testimony of Cecil Pearce.)

gan collecting data on water temperatures in reservoirs. I have, oh, a loose leaf file data and some that I've collected myself by writing letters, and some are bulletins of some of the [576] governmental agencies, and some that I have been able to observe in the Tennessee Valley region, which is much warmer generally.

But, the surprising thing about it is that all over the country, whether it is in Arizona, Tennessee, or in the Bureau of Reclamation reservoirs in the Northwest, where it's cooler, they are always very much cooler in the bottom of the reservoirs than at the top.

And not only that, the temperature in the bottom of the reservoirs stays practically constant the year around. [577]

* * * * *

WILLIAM R. FARLEY

was called as a witness, and having been first duly sworn, was examined and testified as follows:

Direct Examination

Q. (By Mr. Mason): Will you please state your full name and address for the record, please?

A. William R. Farley, and I reside in Arlington, Virginia, 5307 26th Road North.

Q. Now, will you please state your present position with the Federal Power Commission?

A. I am Chief of the Division of Licensed Projects in the Bureau of Power, Federal Power Commission, Washington, D. C.

(Testimony of William R. Farley.)

Mr. Mason: Mr. Examiner, in order to save time, I have given a copy of a statement of Mr. Farley's education and experience to the reporter, and if there is no objection, I ask that it be incorporated into the record as if read, at this time.

Mr. Higgs: The State admits the gentleman's qualifications. [730]

* * * * *

Q. (By Mr. Mason): Mr. Farley, in order that the parties here can get an idea of how our staff work is done, would you just tell us in a general way what processing steps are taken on an application for license?

A. Yes. Following the official recording of an application, a preliminary investigation of the proposed project is made to determine what other federal agencies may have interests which may be affected by the project, and these agencies are notified of the application and are asked to report on the effect the project might have on their interests.

Such agencies are the Department of the Army for navigation and flood control; Department of Agriculture, for national forest lands; Department of Interior for public and tribal Indian lands, in connection with irrigation, and the Fish and Wildlife problems.

And these agencies are depended upon by the commission for advice in such matters.

Public notice is also given in the Federal Register and in local newspapers; notice is also given

(Testimony of William R. Farley.)

to the Governor and the Congressmen of the State and local officials; notice is also given to the State Fish and Game Commissions, who are [742] asked for their advice on fish and wildlife matters; and also State utility regulatory commissions.

The staff checks the design of the project structure for safety, and investigates general plans to determine whether it will develop the portion of the stream involved to the maximum extent that is economically feasible.

Construction and annual costs are checked or determined, and annual value of the power output is estimated; market for the project output is investigated.

These studies are bases for recommendations to the Commission as to the economic feasibility of the project.

Reports of interested federal and state agencies are reviewed, and special license conditions to protect their interests are recommended when necessary.

The results of the staff's studies are presented to the Commission with a recommendation as to whether or not the license should be issued. [742-A]

* * * * *

Q. Now, will you tell me, Mr. Farley, what is your idea of a comprehensive plan of development of a river, very briefly?

A. A comprehensive plan is one which will develop a water resource to the maximum extent which is economically feasible, taking into consid-

(Testimony of William R. Farley.)

eration all purposes for which the water [743] resource may be useful.

Such purposes may include, singly or in combination, power, municipal and domestic water supply, irrigation, flood control, navigation, recreation including sport fishing, commercial fishing, pollution abatement, and possibly some other lesser ones.

Q Do projects for which applications for license are filed have to be complete developments in the entire river?

A. No, licenses may cover a single unit of development; however, the unit must be designed to fit into a comprehensive plan for the river.

Q. Now, you have earlier described how these applications on projects are investigated; has an investigation such as the one you have described been made for the Pelton project?

A. Yes; and several witnesses who follow me will testify on the various details of the investigation.

Q. Have you reviewed the results of their investigation on the staff work? A. Yes.

Q. Does this investigation involve a consideration of the efficiency and effectiveness of the fish handling facilities proposed by the applicant for the Pelton project?

A. No; but those facilities were considered to the extent that they would affect the annual cost of the project. [743-A]

Q. In a review of these studies and investiga-

(Testimony of William R. Farley.)

tions that have been made by the Staff, what is your opinion as to whether or not the proposed Pelton Project No. 2030 is best adapted to a comprehensive plan in the Deschutes River?

A. There have been a number of reports concerning the development of the Deschutes River and the Columbia River as a whole, the latter dealing to a greater or lesser degree with the Deschutes River. Plans of these reports have differed considerably in details.

However, in my opinion, they have developed a pattern for the upper Deschutes Basin particularly upstream from the junction of the Crooked River with the Deschutes River. In this area irrigation purposes are predominant and existing and probable future irrigation water uses have been recognized and taken into consideration. The project proposed by the Applicant together with the so-called Metolius site upstream would occupy the reach of the river next below the reach which is used for irrigation.

The Pelton Project will develop the full head at the Pelton Site and in fact will encroach to a small extent on the Metolius Site which is a short distance below the junction of the Metolius River and which I will refer to later.

The installed capacity proposed by the project is the maximum which under low water conditions that are coincident with the annual peak requirements that the energy available will permit [744]

(Testimony of William R. Farley.)

for position on the load curve available on the Pelton Project.

There is a need for this additional increment of power in the Northwest Pool. The proposed Pelton Project with the re-regulating reservoir is such that it will not interfere with any future development downstream from the project site. The estimated annual value of the power exceeds the estimated cost by a substantial amount considering all costs including those which are necessary in connection with fish handling facilities.

I should like to emphasize that in considering the value of the proposed Pelton Project, I am in no way expressing any opinion as to the efficiency or effectiveness of the fish handling facilities that have been proposed by the Applicant.

Leaving out the consideration of the effectiveness of the fish handling facilities proposed, it is my opinion that the Pelton Project is best adapted to a comprehensive plan of development for the Deschutes River, but that the Commission should reserve the right to adjust the pool level of the Pelton Project at such time as the upstream Metolius Site may be developed in order to assure the maximum feasible use of the reach of the Deschutes River involved.

Mr. Mason: That is all I have of Mr. Farley.

* * * * * [744-A]

WILLIAM PUUSTINNEN

was called as a witness, and having been first duly sworn, was examined and testified as follows: [745]

* * * * *

Direct Examination

Q. (By Mr. Bowles): You have accumulated substantial information with respect to the problem as to the Deschutes and the proposed Pelton Dam and how it will affect the fishery there?

Would you care to elaborate on that position at this time?

A. To this extent that the Pelton Dam Proposal and the fishery area in various reasons particularly, I think I understand from the analysis of the dam, for instance on the arial site of the river, the dam situation there is approximately the same there as it would be at Pelton Site if the dam by the proponents would be built there and I am interested in the fishery segment at Holmes in the Metolius and the Deschutes from the seed stock standpoint expecting some day to have that seed stock extended and developed into a sizable run and also understanding that same feed stock as small as it may appear on the headwaters is still a handful of fish that harvest in the oceans and lower river fisheries and the union fishery already contributes a [746] considerable proportion of the 17,444,000 annual income that the Army Engineers allow themselves for overall production.

(Testimony of William Puustinnen.)

Q. Have you prepared a statement that you wish to read, Mr. Puustinnen?

A. Yes, I have.

Q. Do you care to read that now?

A. I do.

Statement of the Columbia River Fishermen's Protective Union to the Federal Power Commission Protesting the Granting of License to the Northwest Power Supply Company or the Portland General Electric Company, according to whichever concern shall appear as the applicant, for the construction of a power dam at the Pelton Site on the Deschutes River in the State of Oregon. The Columbia River Fishermen's Protective Union, of Astoria, Oregon, organized for over half a century to safeguard the interests of the commercial fishermen of the Columbia River in both Oregon and Washington prays that no license to construct the high dam at the Pelton Site be granted to the Northwest Power Supply Company, the Portland General Electric Company, nor to any other public or private concern.

We, the commercial fishermen of the Columbia, simply ask for a final cessation of the senseless continuing destruction of the freshwater habitat of searun salmons, trouts, shads and smelts, of the Columbia in particular and of the entire Pacific salmon range in general. [746-A]

According to the U. S. Fish and Wildlife Service estimates, we are today maintaining our Columbia salmon fishery from a meager 25 per cent esti-

(Testimony of William Puustinnen.)

mated remnant of the spawning and rearing area nature supplied us with before we found man made dams and obstructions cutting off these area from access to salmon. And that remaining 25 per cent is badly shot to pieces itself by pollution as in the Willamette and depleted in water as in the remnant sections of the Yakima, the Umatilla, the John Day and scores of other streams.

Logging and mining operations have scoured away spawning gravel, covered them with mud or buried them completely under hillocks of rubble. It has to be an exceedingly optimistic guess which would estimate over half of that remaining twenty five per cent geographic area being still in the resemblance of the untouched natural condition nature presented it to us in.

Thus, it doesn't take much mental effort to realize on what a pitifully small segment of the original great salmon spawning and rearing capacity of the Columbia we now have to rely upon for even this meagre $17,440,000 annual Columbia River total salmon production as allowed in the very conservative U. S. Army Corps of Engineers Review Report on the Columbia River and Tributaries, Appendix P, October 1, 1949.

With a 75 per cent total blockage or original spawning and rearing area and the remnant badly affected by numerous destructive factors, there is certainly no longer any intelligent [747] reasoning that would allow for more destruction of this remnant salmon spawning and rearing area of the Columbia.

(Testimony of William Puustinnen.)

The area that would now be lost by the construction of the proposed dam at the Pelton Site is a large and important segment of the remnant early spring chinook habitat of the Columbia. Therefore, this spawning area about the Pelton Site, and the salmon still homing there, represents a large portion of Nature's capital investment in the Columbia fishery which returns us even today $17,440,000 every year. Clearly then the Deschutes River fishery area is worth several million in its present condition.

Fisheries biologists concede a potential increase in Columbia fish production varying from a factor of 3 to 5 of or the various remaining tributaries after the effective completion of the present cooperative salmon rehabilitation program between the states of Oregon and Washington and the Federal government. Thus the Pelton fishery area must be rated at the present seed plot value plus the potential.

The proponents for the dam at the Pelton Site belittle the volume of the salmon runs still ascending the Deschutes above the Pelton Site. Not understanding the salmon fishery any too well, they attempt to apply commercial values to the seed-stock runs in the Deschutes proper in the manner values are applied to the heavy harvests reaped from these very same runs by trollers in the ocean, gillnetters and sports fishermen in the 150 miles of river to the mouth of the Deschutes, and by the Indian fishery. [748]

(Testimony of William Puustinnen.)

Just how intelligent would it be for the cattleman to rate his $20,000 herd sire with his $200 steers? The salmon seedstocks deserve even higher valuations for the simple reason that these very small seedstock runs represent the slender and uncertain margin by which the salmon still retain their hold this side of extinction from the face of the earth.

And, furthermore, science now clearly demonstrates that salmon can be restored to several times the present production volume if we can clean our streams for a healthful habitat and restock them by hatchery methods until the reseeded runs can begin to maintain themselves naturally. To such an end the heavy hatchery costs and investments by both federal and state governments are clearly justified. And in that field alone are the hatcheries of any appreciable fisheries value today. Thus, these small remnant seed stocks are of immeasurable value, far above the per pound value of salmon to either commercial or sports fishermen. These seed stocks can still be redeveloped into heavy annual runs to ultimately produce an estimated three to five times heavier harvest than we now take from these Columbia stocks.

It is also obvious from the numerous hearings and public conferences held for the consideration of salmon problems arising from conflicts with developments in other non-fisheries enterprises, that the general public fails to realize the intrinsic value of salmon as a food resource of this nation. Always

(Testimony of William Puustinnen.)

the salmon [749] has been considered the more valueless item to be shoved out of the way for the non-fishery development be it ever so questionable or small in its value to the public. Private values have overridden the public resource values of salmon time and time again.

Therefore, it is high time that values of salmon be properly rated in parallel studies with values of other items in our national economy.

The food value analyses of the United States Government scientists clearly show the actual superiority of prime chinook salmon as a protein food for human consumption than an equal amount of prime beef.

In the Department of the Interior Information Service release, Reicheck—Interior, 2879, October 17, 1948, Mrs. Rose G. Kerr, home economist for the government says, "Fresh salmon contains more calories, fats, calcium, phosphorus, vitamin A, thiamin, and niacin than roast beef."

Beef, pork, mutton, or poultry meats all require substantial capital investments in feeding ranges and pasturages, housing, care and costly seedstocks. Ground space suitable for human homes and numerous other human uses must be reserved for the growing of these meat foods and we must care for the animals furnishing these meats every step of the way to the point of consumption.

Salmon, on the other hand, requires no space useful for [750] human habitation. Over 95 per cent of its body volume is grown in the vast ocean

(Testimony of William Puustinnen.)

pasturages provided us by nature without one cent of cost in capital investment required to keep that pasturage producing for the duration of all earthly life if we but keep our freshwater salmon and rearing habitat healthful and accessible to the seed-stock runs.

The salmon resource was given to us without one cent of cost. No deeds nor title insurances were required. Nature provided for over 95 per cent of its care completely away from our land environment. And even in the freshwater streams, for the less than five per cent of its weight development, the salmon tends strictly to its own natural business, being as attractive item of nature for various recreational uses and studies by man, yet, never rampaging through his gardens nor trodding down his crops, never irritating man with squeals, bellows, or pre-dawn crowing, never infecting man with undulant fever, chicken pox, tuberculosis, and never carrying fleas, ticks and other parasites to man's door. In short, the salmon does not intrude in any way on man's own habitat nor life.

Would it not be far more intelligent for us to expend at least as much effort, time, and money in the preservation, cultivation and expansion of our salmon resource as we do in husbanding beef rather than to allow more salmon destroyers, as the proposed Pelton Dam, to be built?

One further thought on the background of the salmon resources [751] must not be forgotten. The salmon matures in the great ocean pastuerages

(Testimony of William Puustinnen.)

which are constantly growing richer and richer in the vital food elements of the earth being removed faster and faster from man's land habitat by his consumption and waste of the land's animal and vegetable food products. Yes, the very soil, earth's treasure store of land food elements, is being washed into the sea at a terrific rate even after all of man's efforts today to stop it.

Of the 413 million acres of cropland in the United States today, practically all of the top soil has been washed away from 50 million acres, according to the U. S. Soil Conservation Service, miscellaneous publication number 331. This land is rapidly approaching total destruction. It is no longer farmed. Approximately 100 million acres still in cultivation have lost all or a greater part of the topsoil.

Almost one fourth of our soil resource of the entire 48 states is gone into the oceans. That much of our national food elements pantry is forever destroyed. The remaining soil resource we are destroying faster and faster every day by ghastly erosive land exploitation. And the American standard of living inevitably must die in proportion to our food source losses.

The ancient and depleted soil of China, India, Persia, and Egypt and the later depleted lands of Europe never saw the terrific soil destruction loosed upon this earth along with the terrifically energetic industrial-machine development that [752] has taken place in our own United States.

(Testimony of William Puustinnen.)

Yet, not the hunger before our very eyes in these other foreign lands nor the misery, the poverty, nor yet the resultant degrading of body and mind with the consequent wars and warring in these already impoverished lands seems to awake the great proportion of the American public today to our national and individual responsibilities to make permanent safeguards around our basic soil and sea food resources.

Certainly no one can deny that food is basic with a priority over every other economic item, even the 39,000 kilowatts of prime power that might be developed at the proposed Pelton Dam. And, with our soil food resource already so hard hit, it behooves us to give increasingly more serious consideration for our salmon food resource than to this possible small addition of costly power to our broad Pacific Northwest power pool.

To further understand the real sacrifices already made by the Columbia salmon fisheries resource, through our thoughtless planning, remember that today's production comes from 25 per cent of the original spawning area and from the poor condition of that remnant today. Yet, the annual Columbia canned salmon packed alone today amounts to an average of 276,767 full cases of 60 pounds per case for the ten years through 1950, for all species. Half to two-thirds of this pack now comes from the later season August and September runs.

In 1883, 629,400 full cases were canned from the runs of [753] April, May, June and July with

(Testimony of William Puustinnen.)

practically no fishing whatever in the months of August and September, the months of our heaviest Columbia chinook runs. In the early years only the spring and early summer fancy quality chinooks were even sought. Now, we take every grade to the lowly chum throughout the year.

Had the same intensity of fishing been maintained then in 1883 as today, and had all runs throughout the year been fished equally as today, the pack of 1883 undoubtedly would have been several times larger than the records show. The poundage could have easily gone above 90,000,000 pounds. The Indians take in the same year must have been enough to place the river total production in its natural state to over 100,000,000 pounds from the river producing on its unsoiled natural capacity.

Compare that possible figure with the present known total of all; commercial, sports, and Indian takes of 31,000,000 pounds average last ten year annual figure, and from that study alone it is obvious that we have destroyed up to some 70,000,000 pounds of salmon annually from the Columbia's great original capacity.

70,000,000 pounds today would mean $40,000,000 in today's proportional catches and values, as based on Corps of Engineers own evaluations scale.

Gentlemen, just how much clear river development value are we getting back today in the Columbia basin in return for this lost fortune in fishery? Remember you paid not one cent for the salmon resource but you paid heavily in develop-

(Testimony of William Puustinnen.)

ment costs and are [754] still paying and will continue to pay heavily every year for maintenance and operation of every single man-built project affecting the Columbia fisheries.

The mathematics in the previous simple projection of the known Columbia production toward the possible original capacity cannot be far wrong for the fact from studying the known losses of spawning areas, approximating three times the areas left we can roughly assume a possible total loss factor of 3 times the remaining Columbia production capacity.

Three times the Army's annual $17,440,000, as a picture of the fisheries values lost annually now, gives us an even higher annual loss possibility of $52,320,000 in lost fisheries on today's values.

No matter how we approach the actual loss in the Columbia River fishery due to manmade destructive factors, it would clearly take the total earnings of several Grand Coulee dams to produce equal unencumbered and unsubsidized clear values as we have already lost in our Columbia fisheries by faulty planning.

By faulty planning we, the commercial fishermen see the difference between today's high dams across main fish swimways and spawing grounds, as against far greater numbers of smaller holding reservoirs and power dams wisely selected in sites where little or no fishery damage is possible, generally located high up in tributaries.

For a quick illustration of practical operational

(Testimony of William Puustinnen.)

study, we [755] wish to compare the Pelton proposal to the existing small dam and the proposed newer projects of the City of Eugene on the McKenzie River, another important spring chinook stream.

The Leaburg Dam of the City of Eugene is low, approximately only twenty-eight feet from water level to water level. Its fair ladders can be modernized to very satisfactory fishways. The intake canal can be now screened effectively to prevent all loss of downstream migrants. Salmon fishery can live with that dam. It does not even flood out any appreciable extent of spawning area and its mild current creates a bit more feeding area for salmon fry as an offset for the small but real drawbacks the dam still creates. No hatchery is needed.

The City of Eugene is studying the development of several more dams higher up the river from Leaburg. One dam would be in the potholes area of the river where the summer water level drops below the heavy boulder overburden of the river bottom. No fish ever travelled that section in summer. Therefore, a dam to bedrock there is no destroyer of fishery but can actually be used, not only for power from reservoirs still higher in the mountains to hold back winter waters, but for flood control in realistic planning and also for maintaining better, higher and evener summer time water levels in the areas below where salmon do swim and live.

(Testimony of William Puustinnen.)

And the power from such developments as these of the City of Eugene can be compounded in numerous minor power projects all over the Columbia basin. They need not be total blocks to fish [756] if they are not allowed to divert the entire flow of the river.

A low diversion dam, using only a portion of the river flow and allowing all times sufficient water for natural fish passage safely up and down past the Pelton Site would allow us to take care of a reasonable fishery segment there and to expand it according to the cooperative efforts of the state and federal governments now underway.

It is conceded, however, that such dams need the reservoir backing of numerous small mountain impoundments to make them most practical. And the creation and establishment of a complete and well coordinated headwaters stream control system is a job that should be done by the entire public; farmer, fisherman, sportsman, hydro-engineer, irrigationist, miner, lumberman, industrialist and common home owner, each for his own respective benefits from flood control, soil erosion prevention, fishing, power, industrial and domestic water uses, as the case may be.

Pelton Dam, as proposed, would be too high for laddering, would create no fish food-growing in its nearly vertical walled lake and would leave no alternative for fisheries workers than to transport salmon both up and down past the dam to and from the hatchery as proposed by the license ap-

(Testimony of William Puustinnen.)

plicants. In this respect it would almost exactly duplicate in fisheries effect the present Ariel Dam on the Lewis River, Washington. The miserable failure of the Lewis River hatchery efforts to maintain the original abundant salmon runs by these same suggested methods there [757] should be an irrefutable fact to direct decision on the proposed Pelton Dam. We have too many such fish destroyers now.

The Columbia River fishermen pay for the day when power will be developed by atomic and other means necessitating no more dams in salmon streams.

Neither at the Lewis River, nor at any other hatchery operation, have we built up and maintained continued fish runs as effectively and as cheaply as nature can do the job. And the commercial fishermen are not interested in costly taken returns to any hatchery. We wish to give the public a volume of fine food at low cost, not at a high cost of production nor the high cost of scarcity.

The applicants for Pelton Dam make much of the war emergency aid that this proposed dam with its 39,000 KW's of prime power would be to the nation.

By the Federal Power Commission's own figures of February 28, 1951, the total United States power producing capacity was 69,457,700 KW's. Dividing the Pelton 39,000 KW's by this national total shows that the Pelton effort would contribute to

(Testimony of William Pumstimmen.)

the national power total almost exactly five and two-thirds one hundredths of one per cent.

Surely we had all better prepare elsewhere posthaste if this nation's security depends only upon the Pelton proposed power.

Great blocks of power are coming into the Pacific Northwest Power Pool from the Libby, Chief Joseph, McNary and other great [758] federal dams.

Private interests can also bring in more power from dams above the Ariel site on the Lewis River where they have already killed off the original heavy fish runs beyond repair.

Rock Island Dam can also be expanded by the installation of more generators there.

Therefore, the Columbia River fishermen do pray that the Federal Power Commission does give prior consideration to our salmon food resource even over emergency power needs. Power alone cannot feed our fighting forces, and without food, no nation lives even after a military victory.

Q. In your surveys in your union with the various state and federal agencies, connected with it, connected with the Fishery rehabilitation program, has it been your occasion to observe a work of various hatcheries in the rehabilitation program over the area?

A. Yes, I have been very much interested in hatchery operations of both the state and the federal government and have quite definite opinions on the same.

(Testimony of William Puustinnen.)

So far it has been my observation that the hatcheries have not in any great number of fishes produced a volume of fish to a commercial fishery with a cheap cost. [759]

* * * * *

ALPHONSE KEMMERICH

was called as a witness, and having been first duly sworn, was examined and testified as follows:

Direct Examination

Q. (By Mr. Higgs): Will you state your name for the record?

A. Alphonse Kimmerich.

Q. Where do you reside, Mr. Kimmerich?

A. Portland.

Q. What is your business or occupation?

A. I am employed by the Fish and Wildlife Service as Fishery Management Coordinator.

Q. That is the U. S. Fish and Wildlife Service?

A. That is right.

Q. For how long have you been so employed?

A. I have been in my present capacity since about three and a half years.

Q. What were you—were you employed by the Fish and Wildlife Service previous to that?

A. Yes.

Q. For how long?

A. I first entered the employ of the former Bureau of Fisheries which is now the Fish and Wildlife Service in February 1, 1919. I resigned in August of that year and re-entered the service the fol-

(Testimony of Alphonse Kemmerich.)

lowing April 1 and have been continuously employed since that date. [973]

Q. What is the nature of your present duties?

A. The nature of my present duties as Coordinator of the so-called Lower Columbia River Fisheries and developing program.

Q. I see, would you state what the Columbia Basin Interagency Committee is under that program? Is there a Columbia Basin Interagency Committee under that program? A. No.

Q. Explain the difference.

A. The Lower Columbia, is a program that was developed by the Fishery Agency of the States of Oregon and Washington and Idaho in cooperation with the Fish and Wildlife Service. The Columbia Basin Interagency Committee is an interagency group comprising a regional representative out of, I think six federal departments, including the heads of the States within the Columbia River area.

Q. Name the Federal Agencies that are represented?

A. Department of the Army, Department of Commerce, Department of the Interior, Bonneville Power Administration, Federal Security Administration and the Federal Power Commission.

Q. Can you state the objectives of the Lower River Program?

A. Yes. The lower River Program is the—is designed to mitigate, ameliorate and otherwise insofar as possible, the damage that had been inflicted upon the fishery resources of the Columbia River for

(Testimony of Alphonse Kemmerich.)

construction of dams, deforestation, mining pollution and other encroachments of civilization. [974]

Briefly the points of the program are and I am now quoting from this book in order to——

Q. State what you are quoting from?

A. A reprint of the American Fishery Society entitled "Fishery Development Program in the Lower Columbia River" by Leo L. Lagthe, U. S. Department of the Interior, Fish and Wildlife Service, Portland, Oregon.

The six major points of the fishery program are:

1. Removal of obstructions to permit passage of fish.

Q. What page are you reading from?

A. Page 51.

Q. Go ahead. Thank you.

9. 2. Abatement of pollution;

3. Screening of water diversions and constructions of fishways;

4. Transplantation of upriver runs;

5. Expansion of artificial propagation;

6. And establishment of fish refuges in which conflicting developments will not be permitted.

Q. Are you able to state from your work in your Association in your present position with the U. S. Fish and Wildlife what the attitude of the Columbia River Basin Interagency Committee is with respect to the lower river program?

Mr. Mason: Mr. Examiner, I object to that question.

(Testimony of Alphonse Kemmerich.)

Presiding Examiner: That calls for a yes or no answer. [975]

Mr. Mason: I beg your pardon.

A. I am familiar.

Q. (By Mr. Higgs): Will you state what that, in your opinion, the attitude is?

Mr. Mason: Mr. Examiner, I object to that question as this witness stated what the attitude is of the Committee or anybody else. There must be some records that would show what they have done to express the attitude. I think that would be the best evidence.

Q. (By Mr. Higgs): Has the Committee gone on record to your knowledge concerning the development of the Lower River Program?

A. Yes, they have.

Q. Do you have any resolutions or minutes or any other matters of record to substantiate your statement? A. I do.

Q. Would you produce them?

A. I have the—before me a copy of the minutes of the 12 meeting of the Columbia Basin Interagency Committee which met in Portland, Oregon, on October 8, 1947. It is a long statement and I think that I can, if I may, I can brief it to indicate the members participating in this particular meeting and the results of that meeting.

Q. Who were the members participating in that meeting? [976]

A. Federal members were Mr. Robert J. Merrill, Department of the Interior; Farren D. Weaver,

(Testimony of Alphonse Kemmerich.)

War Department; Leslie Weston, Mr. George T. Hudson, Department of Agriculture; Mr. Rayburn, Department of Bonneville Power Administration. Mr. Waterbury, Department of Commerce.

Q. Where there any state agencies?

A. Yes. The states were represented by Mr. Mark Polk, State of Idaho, Section of Engineers; Mr. Charles E. Stricklin, Oregon State Engineer; and Mr. C. H. Raymond, Montana State Water Conservation Board.

At that meeting the Columbia Basin Interagency Committee considered the recommendations and findings of a fact finding sub-committee which had been appointed by it previously to seek out the factual data and information gleaned at the previous meeting of the Committee which was held at Walla Walla on July 26 and 27th. That meeting was held for the purpose of determining whether a recommendation presented to it by the Secretary of the Interior for a moratorium on the Construction of Dams on the Columbia Basin for a period of ten should be accepted.

The committee after full discussion and full deliberation presented its recommendations to the Federal Interagency River Basin Committee in Washington, D. C., and the committee in short stated that it did not recommend a rescheduling of dams now authorized by Congress since it was held that that would not be for the best interests of the public, but it did urge the support [977] of all feasible measures for improving fish conservation

(Testimony of Alphonse Kemmerich.)

and development and recommended immediate initiation of the Lower Columbia River Fishery River —Fishery Program as composed by the United States Fish and Wildlife Service in the States of Oregon and Washington.

The Committee was unanimous in these recommendations. That in short is the gist and context of their action.

Q. You did testify, I believe, that the Federal Power Commission was a party to that particular meeting, is that right, had a representative there?

A. Yes. The minutes of the meeting indicate that a Federal Power Commission Representative was present and participated in the action of the committee. I personally was not present. However, there was a representative of the Fish and Wildlife Service at that meeting.

Mr. Mason: May I ask one question as a matter of clarity?

Is that the meeting of October 8, 1947?

The Witness: That is right.

Q. (By Mr. Higgs): Are you able to state for this Commission who finances the lower river program?

A. The lower river fishery program developing program is financed entirely by the United States Government.

Q. Are you able to state to what extent that is, roughly [978] how much they contribute? How much has been contributed?

A. The first appropriation was made by Con-

(Testimony of Alphonse Kemmerich.)

gress for the fiscal year 1949 and in that year there was one million dollars appropriated and the fiscal year 1950, one million one hundred and seventy thousand dollars were—was made available and in 1951, two million, two hundred twenty-five thousand dollars was made available.

These monies are appropriated to the Corps of Engineers and their River and Harbors appropriation act and by Congressional directive are transferred to the Secretary of the Interior for expenditure in accordance with the act of August 8, 1946, the so-called Mitchell Act. The State of Oregon and Washington are allocated a portion of these appropriating funds for expenditure in accordance with the Act of Congress referred to previously.

Q. There is some reference in those minutes to the agreement or program rather between the United States Fish and Wildlife Service and the States of Oregon and Washington. Can you state just briefly what that program is between those three agencies concerning the Columbia River Program.

Mr. Mason: I didn't understand you. Where are you getting that?

Mr. Higgs: It is in that minute that he just read, I believe.

Q. (By Mr. Higgs): Or is it in the book, which one? [979]

Mr. Phillips: He didn't read any minutes yet, did he?

(Testimony of Alphonse Kemmerich.)

Mr. Higgs: He read excerpts from the minutes, he testified from them.

Q. I believe it is in the periodical there, bulletin as you referred to it in some program between the States of Oregon and Washington and the U. S. Fish and Wildlife Service.

A. I think it refers to it, however, it actually does not contain a copy of the agreement. I am familiar with that agreement.

Mr. Mason: Let me ask this question before you testify on that matter. The objective and so on are set out in Exhibit No. 1, which is the actual agreement?

The Witness: That is right, sir. [980]

Q. (By Mr. Higgs): Now, do you have an opinion as to what effect, if any, the construction of the project in question, meaning FPC 2030, at the Pelton dam site, commonly known as the Pelton dam, will have on the Columbia River program and fisheries in general?

Mr. Mason: Is your question "does he have an opinion"'?

Mr. Higgs: Yes, does he have an opinion.

A. Yes, I do.

Q. (By Mr. Higgs): Will you state that opinion?

Mr. Mason: I object to that question. This witness, I'm sure, knows lots about fisheries and the Deschutes and Columbia Rivers, but he hasn't shown in this record that he is qualified to answer

(Testimony of Alphonse Kemmerich.)

that question; he hasn't put in any basis for the question, any foundation.

Q. (By Mr. Higgs): Are you familiar with the Deschutes River?

A. Just generally. [981]

* * * * *

JOHN M. HURLEY

a witness called, was first duly sworn, examined and testified as follows:

Direct Examination

Q. (By Mr. Higgs): Will you state your full name for the record, Mr. Hurley?

A. John M. Hurley, Jr.

Q. Where do you reside? A. Seattle.

Q. What is your business or occupation? [994]

A. I am supervisor of the Division of Stream Improvement of the State of Washington, Department of Fisheries.

Q. How long have you held that position?

A. For over three years.

Q. What are the nature of your duties in that particular position?

A. In the Stream Improvement Division we have charge of the management of all of the streams in the state of Washington insofar as fish life are concerned and we make an effort in that Division to maintain as much of the natural environment available for the salmon as is possible and in places where the natural environment has been destroyed by the works of man or by the works nature per-

(Testimony of John M. Hurley.)

forms, we try to bring as much of that into production as soon as possible and wherever the environment is threatened by any project or any movements that we feel is not in the best interests of the people of the State of Washington, we try to maintain it.

Q. What is your education, Mr. Hurley?

A. I am a graduate of the University of Washington, School of Fishery with a degree of Science of Fishery.

Q. What year did you graduate?

A. 1941.

Q. Have you been employed since you graduated by the Washington Department of Fisheries?

A. I have been employed since 1940. [995]

Q. With them?

A. I worked before I graduated.

Q. You have been employed with the Department of Fishery in Washington State since prior to the time you graduated?

A. That is correct and since I have been with that agency I have been research biologist in the research Division. I have been in charge of the Division of Statistics and Assistant Superintendent —Supervisor of Salmon Hatcheries and Chief Supervisor of the Division of Stream Improvement.

Q. Have you received any other degrees other than the one you testified about? A. No.

Q. Have you made any scientific study since you graduated other than what you might have made in connection with your official duties?

A. Well, nearly all of our official duties are related with studies of one sort or another.

(Testimony of John M. Hurley.)

Q. I see. I meant outside. A. No.

Q. Are you familiar with the construction of the hydroelectric plant and dam known as the Pelton Dam Site? A. Generally.

Q. On the Deschutes River? A. Yes.

Q. Have you examined the plans of that? [996]

A. Briefly.

Q. Have you had some experience in connection with your duties with the Washington Department of Fisheries and similar projects in the State of Washington?

A. We have several high dams that are on various salmon producing streams of the State of Washington, in addition to those that are on the Columbia River watershed itself.

Q. Will you name those please?

A. Well——

Q. Do you have some brief description?

A. Well, one of the dams of major importance is the Baker River Dam.

Q. Where is that located?

A. That is on the Baker River, tributary to the Skagit in the vicinity of Concrete, Washington.

Q. How high is the dam?

A. About 265 feet high.

Q. Describe generally what the situation is there.

A. Well, the Baker River is one of the major tributaries of the Skagit. It once had very fine Chinook—salmon runs, it had the only native run of sockeye salmon and was indigenous to the Puget Sound Area and it had a tremendous run of silver

(Testimony of John M. Hurley.)

salmon, also had steelhead and Fink or humpedback salmon. It did at one time. The Baker dam was built about 1926 and since that time by various laddering and hauling the—devices that have been [997] operating at the power dam by the power company under the supervision of the Department of Fisheries.

Q. Describe those will you please?

A. Well they consist of a wooden picketed rack which crosses the stream at—adjacent to the upper end of the power house and in the center of this rack there is a trap which consists of a cone shaped wooden tunnel leading into a wooden picketed area in which a metal box is placed in order to trap the fish.

Another trap is located in the upstream corner of the powerhouse adjacent to the abutting end of the picketed rack and salmon also are trapped at this location and when the salmon go into this trap the thing is operated periodically and the first move the bucket down in the trap is raised up in the fashion of an elevator and the salmon are placed in the small railroad car, I would say about seven or eight feet long and perhaps 4 feet wide and then they are transported up a couple of hundred feet of railroad track to another elevation and placed in another holding tank where they are held until approximately 50 salmon are accumulated in there and a lynch is placed on this tank and it is hoisted up on a cable and carried over the top of the dam where the fish are then placed into another tank and

(Testimony of John M. Hurley.)

sluiced out into about a 12 or 15 inch wood pipe into the lake.

The fish are captured in a live box and taken up the lake [998] away from the area of the dam.

Q. Will you state if you know what success this particular operation has had?

A. It has had a great deal of trouble with this operation and it has been altered many times. Originally they had a concrete fish ladder that went up the first part of the route up to where the cable car takes over and this fish ladder was of an obsolete design and the climb was too severe for the salmon and they failed to get up this way so the ladder was abandoned. Since this device that is in effect now has been placed in it is more successful than the previous operation there, but it is subject to many different types of failure.

One problem there is the fact that many times there will be a freshet before the end of the salmon run is over and the rack either goes out or by necessity is removed by the power company and as much as half of the silver salmon run has come in there after the rack has been removed and other times why we have beaver running up and down the river and when they come through an obstruction such as a rack they have a tendency to chew their way through it rather than go around it and they are a terrific problem there because that quite often makes gaping holes in the rack.

Another problem of course is sometimes where there is a lot of leaves coming over the dam or

(Testimony of John M. Hurley.)

debris it will become filled with that type of debris and it has been known to blow out [999] underneath several times and it is quite a problem to keep the fish tight although it is a major structure and it is very well built.

On one occasion I was up at the dam and saw half of the annual popeye run above the rack in the vicinity of the foot of the dam where they would jump at the spill of the dam until they were destroyed. They were in a place where it was impossible to recapture and they were in a condition which wouldn't have allowed them to swim on if they had been recaptured.

The department of Fisheries is going to require an improved device there and we are going to try to work out some of the bugs at that particular project.

Q. You mentioned there are several dams. You have just discussed one. What is the name of the one you just talked about? A. Baker Dam.

Q. Can you name another?

A. We are—we have Airal Dam on the Lewis River which is tributary to the Columbia River. It is around 190 feet high and we have a trapping device there that consists of a big tank which is placed on the truck and the fish come into the power house collection system at the base of the dam and swim over a crest with a finger trap on it similar to the first step of the fish ladder and they swim into this tank and they are raised with an electric hoist and placed on the truck and taken around the [1000]

(Testimony of John M. Hurley.)

dam. Some of these fish are released in the reservoir area above the dam and some of those species that are required for artificial propagation program are taken to a place named Cougar and placed in holding ponds where they are held until it is possible to take the eggs for hatchery purposes.

Q. Pardon me, I thought you were through.

A. There are a lot of things that are wrong with that particular device. One thing is that the roughness of the bottom of the channel is such that it causes of a great deal of turbulence just below the entrance of the fish selection device and there are transversal clearances that makes entrance to the device difficult just below the powerhouse and another problem is that the spill is at a 45 degree angle to the access of the stream and also it causes a lot of distraction and turbulence just below the entrance of the fishway and we have had a great deal of difficulty there particularly with the Chinook salmon and of the particular with the springs.

We have made the entrance conditions as good as they might be made, under the conditions that we have there. The fall Chinook aren't too eager to trap and the spring chinook actually will swim up and enter the lower end of the thing and leave. They are very sensitive fish and they are quite readily suspicious of something that they are not familiar with and we found a great deal of difficulty in trapping them there.

I believe it was last year the run of spring chinook [1001] salmon was as low in that river as 19

(Testimony of John M. Hurley.)

fish or something like that and it seems that the silver salmon is the easiest trap in such a device and the kind of fish that can sustain itself better than the others in the spring we have had a problem with the high dam.

We have a high dam in the State of Washington such as the Alder and the Lagrande in the City of Tacoma on the Wisqually River and those dams are located above what originally was the major spawning area in the Wisqually River but they have the peaking process there at the dam where they fluctuate the flow of the river and I have observed thousands of small dead fish in the areas that have been left dry when the river has been shut off below the dam and it is quite a problem to maintain a variance with the river fluctuating like it does up there.

Q. I understood you to say that you have examined the plans of the Pelton, the proposed dam?

A. That is right.

Q. You understand they propose to construct a reregulating dam and holding ponds and hatcheries above the dams, is that right? A. Right.

Q. You are or are you familiar with the Deschutes River?

A. Yes, in a general way.

Q. Now from your—Pardon me. What affect if any has the dams to which you testified in the State of Washington had on [1002] salmon runs in the—in those rivers in which the dams are located.

A. Each of the dams that I have mentioned has had a very serious effect on the salmon

(Testimony of John M. Hurley.)

Q. What was that?

A. In respect that there has been a mortality not only upstream but downstream migrants in the areas in which these fish are located.

Q. Are the dams such a height that you testified concerning that the salmon try to migrant over those dams?

A. They are placed over them, in the manner that I have described.

Q. What was the height of the Baker Dam?

A. 265 feet.

Q. The Arial Dam is 100 feet? A. 190 feet.

Q. Do you know what the proposed height of Pelton Dam is? A. 150 feet.

Q. I will ask you whether salmon are able to maneuver or in other words get over a dam of 200 feet high without some assistance, mechanical assistance?

A. The highest conventional pool type fish ladder that is in operation any place in the northwest is on Bonneville Dam which is 65 feet in height.

It is my opinion and the opinion of most of the fishery [1003] agencies on the coast that there is a limit somewhere above that where it is impractical to build a conventional pool type ladder.

In view of that fact we found it more practical in many cases to build a hauling device.

Q. I believe you testified that the Baker Dam and the Ariel Dam have some form of hauling device? A. That is correct.

(Testimony of John M. Hurley.)

Q. Would you tell this Commission what success, if any, those hauling devices have?

Presiding Examiner: I think he has already covered that.

Mr. Higgs: He has covered that?

Presiding Examiner: Didn't you?

The Witness: Yes.

Mr. Higgs: I don't want him to repeat it. I am not keeping notes here.

Q. (By Mr. Higgs): Have you testified to that? Do you recall that? A. Yes.

Q. You have testified about that? A. Yes.

Q. Do you understand that they propose to transport fish at the Pelton dam? A. Yes.

Q. By means of motor vehicle? [1004]

A. Yes.

Q. Do you have an opinion from your studies and your experience as to whether or not that would have any affect on the salmon run? Whether such transportation would be successful in the proposed operation?

A. Well, to testify specifically on the device that is being proposed I believe is more directly within the province of the Oregon Fish Commission, but I will testify generally on the subject by saying that at Lewis River where we have tried hauling we do have holding ponds that we have a great difficulty there over a period of time in holding the salmon until they are ready to spawn.

There is a mortality as a result of that process and it happens that we have a very good type there

(Testimony of John M. Hurley.)

for holding the fish which may or may not be available on the Deschutes River.

Mr. Mason: Where do you have this site for holding?

The Witness: At Lewis River. There have been other attempts in the past to hold salmon for a long period of time until they mature and in many cases they have been quite unsuccessful as a matter of fact when the chinook hatchery was in operation down near the mouth of the Columbia River conditions weren't suitable at that point and they had a disasterous mortality there. [1005]

Q. (By Mr. Higgs): Do you have an opinion as to what might be the solution to the situation you describe, with respect to dams in rivers that contain migratory fish?

A. Well, we've given a great deal of thought to that matter, and in order to remain in business as a public agency concerned with the management of the fish in the State of Washington, we have had to determine what place we felt the salmon should play in the future economy of the State, and how best that place might be obtained.

We have had to determine whether or not we were justified in proposing any development projects by different agencies or groups, and we have settled on a policy that we feel is to the best interests of the people of the Northwest and the nation, and that policy calls for the building at the present time of power structures in places where they will do no harm, or a minimum of harm to the salmon

(Testimony of John M. Hurley.)

runs, and in the meantime conducting a very concerted study of these problems, in the hopes that in the next 10 years or so we may be able to have a lot of the answers to this problem that are not available at the present time.

Q. Is it your opinion that the dams, therefore, should be constructed at a lower height?

A. It is our opinion that the dams should be constructed on streams and tributaries where major salmon runs were not [1006] concerned; and there are 387 dam sites, for instance, on the Columbia River watershed with a power potential around 31 million killowatts, and we feel that a great many of those structures could be built before some of the lower river dams that are in the area where we have been trying to save the salmon.

Now, for instance, you might wonder why we are concerned in the State of Washington with the Deschutes River. The reason for that is that under the present federal program, we have no indication that we are not going to lose, so far as salmon production is concerned, that we are not going to lose almost the entire upper river watershed.

And, of course, under this lower river salmon rehabilitation program, we have been endeavoring to bring all of the streams tributary to the Columbia River west of the McNary Dam, up to their maximum potential so far as fish production is concerned, and any high dams that are built in those areas on those tributaries will undoubtedly reduce the populations of fish produced by those streams,

(Testimony of John M. Hurley.)

and therefore will be very damaging to the overall effects of the lower Columbia River salmon rehabilitation program.

Even though the Deschutes River is in the State of Oregon, it is of importance to the State of Washington since it is a mutual resource that we have on the Columbia River, and salmon produced by its tributaries are taken not only by the fishermen of both states, but they are taken by the fishermen all the way [1007] from California to Alaska in the ocean.

Q. Do you know whether or not the Deschutes River has spawning beds, or not? A. Yes.

Q. Do you know anything about——

Mr. Mason: Does he know, or which do you understand.

Q. (By Mr. Higgs): Do you know?

A. Yes.

Q. Well, does it, or does it not?

A. It does.

Q. Do you know anything about the Deschutes, as to whether or not it has in the past, and is at the present time, capable, and does it carry a salmon run?

A. I have not made any personal studies on the authoritative number of fish in the stream, but we have the figures of the Oregon Fish Commission, which is a reliable agency, and we exchange information of mutual interest with this agency in regard to the streams.

I have seen the Deschutes River at many points,

(Testimony of John M. Hurley.)

and it is of the characteristic type that other salmon streams are in the State of Washington.

Q. Can you state what effect, if any, the construction of dams has had on the migratory fish in the Columbia River, generally? [1008]

A. The general effect that it has had, generally, had been to destroy the races of fish that went in to where these high dams have been constructed. The biggest depletion, of course, has been in the spring chinook and blueback runs that once ascended to the headwaters of the Snake River and the Columbia River, and they in many cases have been, the spawning areas, have been lost by such high dams as those on the Owyhee and the Burnt River in Idaho above Grand Coulee.

In addition, we have the low head type of dam, such as Bonneville, which has also caused losses of fish.

There have been a series of 16 experiments carried on in regard to Bonneville, involving about a million, six hundred thousand small fish that have been marked. These fish have been released above and below the dam; and the average mortality on the returns has been about 15 per cent, as a result of the fish passing Bonneville Dam.

Q. Can you tell the Commission from what cause?

A. This fatality is caused either from passing through the turbulence, where the fish are subjected to abrasion, or where they are subjected to violent pressure changes; and it is also caused by passage

(Testimony of John M. Hurley.)

over the spillway where they are caught in a very turbulent area, what is known as the bucket of the dam, and thrown back into what is known as the back roll.

Q. You say that is a "low what" dam?

A. Low head. [1009]

Q. Low head; now, that's the Bonneville?

A. Yes.

Q. Now, what do you call this? Is this a high head dam, the Pelton? A. Yes.

Q. I am not an engineer, so I may ask you some questions that seem silly—they may all seem silly, as far as that's concerned.

But, what effect, now, would a high head dam have upon fish—salmon?

A. The things that are destructive to salmon on a low head dam are of greater size and importance on a high head dam, and we haven't had an opportunity to get a full and complete answer on that.

We do have this, though: our department has been conducting an experiment in conjunction with the International Salmon Commission on Baker Dam during this spring; we just finished the first year's operation on this particular experiment, and I have not had a chance to analyze the data.

However, on one group of fish, as high as 49 per cent of the downstream migrants were destroyed.

Q. From what cause?

A. Going through the turbines.

Q. Going through the turbines? A. Yes.

Q. Are you able to state whether there is a like-

(Testimony of John M. Hurley.)

lihood that the fish will go through the turbines on Pelton dam if constructed?

I mean by that, you said you examined the plans, but I don't know how extensively.

A. Unless the intake for the dam was screened with a mesh that would prevent their entrance into the penstocks, the little fish would be destroyed by the turbines.

Mr. Higgs: That's all; you may cross examine.

Cross Examination

Q. (By Mr. Phillips): What is the maximum depth at which fingerlings can swim?

A. That is not known.

Q. What would be your opinion?

A. I have no definite conclusion on that; they do swim, at Baker Dam, to a depth of 80 feet.

Q. Eighty feet?

A. That's known.

Q. They could go down to 150?

A. I think that it's possible.

Q. And they could stand that pressure?

A. Yes.

Q. What about your high dam up there at Coulee: what do you do about that? [1011]

A. I did not make any attempt—any attempt to retain the natural environment above it.

Q. What did they do about salmon?

A. Salmon were trapped at Rock Island Dam and transported to other streams and to federal hatcheries in the vicinity.

(Testimony of John M. Hurley.)

Q. And you have had pretty good success with that, haven't you?

A. That depends upon your perspective. There was a measure of success, and parts of it were quite successful and parts of it were not quite so successful. There were other contributing factors to the success of that project which may not seem quite clear on the surface.

One thing is that up until the time the Grand Coulee project was constructed, the tributaries of the Columbia where the first fish were transplanted, such as the Yakima, the Wenatchee, they had many irrigation canals that were not screened.

About the same time as the Grand Coulee project went into effect, our department undertook a major screen program in that area; we have about 200 rotary fish screens to protect the fish in that area, so the streams in which the transplantations to remain were ripe for such a program of transplantation because the native stocks in those streams had been run down by reason of the fact that these upstream diversions destroyed too many fish.

So, when the races of fish that were trapped at Rock Island [1012] were transplanted in there, they did much better than they presumed they would have done if they had been placed in a stream that was supporting a normal run of salmon.

In addition there were races of these fish that were undoubtedly lost forever; there has been a great deal of progress made on the transplanting of salmon business, but we are getting now to the place

(Testimony of John M. Hurley.)

where there isn't any other place to transplant them.

Q. Well, on your transplantation up there, are you familiar with Mr. Lathey's report that's been put in evidence here as Exhibit No. 28?

A. Not entirely, no; I'm not entirely familiar with it. I know of it, but I'm not aware of it all.

Q. Well, is he correct, then, when he shows from 1933 to 1943 over the Rock Island fishways on that count, they showed a count of 17,006 salmon, and after transfer, from 1944 to 1947, they showed a count of red salmon of 34,146? Wouldn't you say that was increasing it?

A. I told you that there was parts of this program, various places it has been increased; other races have been lost forever.

We are not concerned with the bluebacks at the present time on the Deschutes.

And, in addition, I would like to add the fact that these streams were screened, and enabled the tributaries to produce [1013] more salmon after the Coulee project than those particular streams produced before.

Q. Well, they did actually show an increase, though, by transplantation methods?

A. Not only through transplantation, but——

Q. But by more favorable conditions?

A. More favorable conditions in the streams they were being transplanted in.

In other words, the depletion that was going on in

(Testimony of John M. Hurley.)

those other tributaries before Grand Coulee, made the statistics rather inaccurate.

Q. What effect would these other factors have on the salmon runs?

Let's look at a few of them: what effect, for instance, would pollution have on them?

A. Pollution has a very serious effect on salmon, in localized areas; but, we have a very serious pollution problem in the Willamette in Oregon; we have a very serious pollution problem in Everett Harbor, in the State of Washington another one at Grays Harbor, State of Washington; and isolated spots on the Columbia River watershed.

But, in so far as an overall watershed problem is concerned, pollution does not have anywhere the magnitude as a salmon destroyer of importance that other environment has.

Q. What effect does irrigation have on them?

A. We have a very complex program in the State of Washington, in which the supervisor of hydraulics, who must pass on all water right applications for irrigation, domestic purposes, industrial purposes, or any other purpose, must submit each application to the Department of Fisheries, and we make a field examination of each one of these applications; we go over the program with the applicant and determine what amounts of water he can take from the stream without unduly harming the salmon.

Q. I wasn't asking for your procedure, I was asking what effect irrigation does have on the salmon run.

(Testimony of John M. Hurley.)

A. It has a minimum effect, through the procedure that I just outlined.

Q. And what effect does logging have on them?

A. Logging has had a bad effect on salmon in many places. We now have laws, however, that are overcoming many of the problems that were caused by logging, and a good many of the areas that were stripped very clean in the early days of logging have now come back in the State of Washington, and we have better cover on many of our streams than we had 10 or 20 years ago.

Q. What do you do about log jams?

A. We have a very large program at the present time for overcoming that; they have just spent during the past year $38,000 on the lower Columbia River area for removal of log jams.

Mr. Mason: Who is "we"?

The Witness: Department of Fisheries. [1015]

Q. (By Mr. Phillips): What do you do about blowdowns that cause log jams?

A. You mean trees that blow down?

Q. Yes, natural falling, or blowing down?

A. The same thing.

Q. Erosion, natural stream erosion; what do you do about those log jams, trees topple down?

A. Very few of those that blow down can constitute an obstruction to fish life. As a matter of fact, the log jam has been magnified in importance in the public's eye as an obstruction of fish life, because a lot of log jams actually are not obstructions; because, unless they have velocity through them that

(Testimony of John M. Hurley.)

the salmon are unable to pass or unless they are plugged tight so that they create a natural head in the stream, why, the salmon are able to swim underneath; many of them go through it.

Q. You have heard that nature created a log jam head? A. Yes, I have.

Q. How long did it take the stream to go around it?

A. What generally happens, they blow out, and the logs jam from one end of the stream to the other. We do have a program, though that takes care of those things, too, they are not considered a serious problem.

Q. You have given us some figures on the mortality of salmon; what is the mortality of salmon on a natural stream, unimpeded? [1016]

A. Well, that's a rather broad question, because it would all depend upon the species of fish involved, the size of the stream, and it may vary from almost nothing on most of our streams, to a minor loss on some of those that are quite precipitous.

Q. Did you make any study at all on the mortality of salmon in their natural habitat?

A. The mortality of that type is not considered significant.

Q. You never have made a study, then, have you?

A. Wherever we have found that mortality has developed significantly, whatever the cause, we have made a study.

Q. Not the natural mortality?

(Testimony of John M. Hurley.)

A. We haven't found a natural mortality.

Q. You don't know, then, whether the 15 per cent that you gave us a figure on mortality going up over one of these dams—I don't recall which one, either Baker or Ariel Dam—was a natural or an unnatural mortality?

A. I did not give 15 per cent or any other per cent as the mortality on fish going up over the dams.

Q. Perhaps that was the one coming down, on the fingerlings?

A. We do know that there is a significant mortality.

Q. What is the natural mortality of fingerlings in the natural stream? [1017]

A. That is undetermined, but that is a matter of balance of nature; where nature has provided the species with a given number of eggs in order that, other conditions permitting, they will be able to produce an abundance.

Q. Let me ask you one very broad question, then: do you consider mankind as a part of this great field of nature? A. Yes.

Q. So that nature takes care of the balance of the whole species of the animal kingdom, doesn't it?

A. Wherever man doesn't interrupt it.

Q. Well, man is only a part of it, isn't he?

A. That's correct.

Q. How extensive have your studies been of the Deschutes River?

A. I personally have not studied the Deschutes

(Testimony of John M. Hurley.)

River; I am generally familiar with the stream, its location, and its general appearance.

Q. Do you know here the salmon spawning beds are on the Deschutes?

A. Specifically, no; generally, yes.

Q. Have you ever seen them?

A. I have examined areas that could be utilized by the salmon, but I have made no search for salmon on the Deschutes River.

Q. How extensive are those areas that you observed? [1018]

A. I did not make any quantitative analysis; in other words, I have seen the stream only at certain spots.

Q. Whereabouts were they located?

A. What's that?

Q. Whereabouts on the stream were they located?

A. Well, mostly near the mouth.

Q. Near the mouth? A. Yes.

Q. Below the Pelton site, then?

A. And I have crossed the stream or the upper parts of the watershed, but I am not familiar enough with it to describe it successfully.

Q. Do you know anything about the Metolius River bottom or the Deschutes in this canyon where it is to be flooded out by the Pelton site?

A. I believe that that is well within the province of the Oregon Fish Commission, and they are better qualified to discuss that than I.

Q. You don't know anything about that, then?

(Testimony of John M. Hurley.)

Do you know anything about any fish that have been marked in the Deschutes River; do you know if they have been?

A. I would rather not discuss that.

Mr. Higgs: I don't think that's proper cross examination.

Mr. Phillips: Well, he told us about fish being marked in the Columbia watershed. Now, I want to find out if he had any [1019] of these marked on the Deschutes.

A. I discussed only specific experiments on the Bonneville Dam, and the data that is kept with respect to certain tributaries is maintained by each of these separate agencies; it would be impossible to have them in front of us all the time.

Q. (By Mr. Phillips): I think you indicated there were some fish marked above the Bonneville Dam? A. That is correct.

Q. Do you know here they were marked?

A. Yes.

Q. And whereabouts were they marked?

A. Just above the dam.

Q. Just above the dam?

A. Just above the dam.

Q. I got the idea that they were marked at the tributaries in various places.

Mr. Phillips: That's all. [1020]

Cross Examination

Q. (By Mr. Bowles): Do your studies of holding salmon with respect to spawning, what has been

(Testimony of John M. Hurley.)

—what effect does that have on their ability to spawn?

A. There hasn't been any serious effect on those that are held in proper places for—in satisfactory conditions, but it is not always easy to create those conditions. Fish that are held unnaturally too long, we have had experience that they had a smaller percentage of their eggs fertilized. Some of the eggs are not fertilized because they are not extruded from the body as a result of being held too long.

One of the serious problems during the holding fish is that they are very nervous during that stage of development and they constantly fight any flowing water or any attempt to migrate if there is any flowing water.

Q. Are they inclined to a higher than normal mortality rate as a result of disease or parasitic growths?

A. That has been the case. The Chief of our Research Division will be here tomorrow to testify and he has specific experience with that problem.

Q. Are you familiar with any place where sockeye salmon have been successfully held to a point where they are ready to spawn?

A. We had occasion in the state of Washington where we [1021] transplanted Baker River sockeye in the Issaqua Lake in the Washington watershed and these two strings were of different character and when the popeye came back into the Issaqua Creek we held these fish in attempt to hold them until they ripened up since they were green

(Testimony of John M. Hurley.)

and unready to spawn and the watershed was below that stream and much shorter than the watershed from which they were native and these fish fungused up in a large degree and died without spawning.

Q. Are you familiar with the reports of the United States Bureau of Fisheries which is now the Fish and Wildlife Service with respect to the experiment they conducted on sockeye salmon and the Lake Hosette?

A. I am not familiar with the report on that particular project, but I do know a great deal of information on that.

Q. We are speaking of this log jam proposition here.

Is it necessary for a log jam to be an absolute block to keep salmon from going through it?

A. No, as a matter of fact we have deliberately left many log jams in the streams where there was no obstruction to salmon because it provides cover.

Q. In some cases log jams can increase the condition to a point where salmon can't get through, isn't that it?

A. Either that or let the water through such little openings that the fish can't get through them.

Q. Isn't it a fact that you in your studies, haven't you [1022] found that as a result of streams that are being blocked off that the runs of the fish in this area that each remaining area of spawning becomes that much more valuable to the picture as a whole? A. That is true.

(Testimony of John M. Hurley.)

Q. At the present time it is not the search for the most valuable spawning area but any left at all, isn't it? A. That is right.

Q. In your testimony with respect to Baker Dam, I didn't understand you to say the point of takeoff they are taken out of this dam. How far down, do you recall?

A. About seventy-five or eighty feet.

Q. Now with respect to the migration of upstream migrants and the salmon runs, what is their habits. Do they migrate separately up the stream day and night or do they migrate under some circumstances more at night or more during the day? How is that?

A. There are many factors that influence their movement. They move quite a bit at night and in addition they will move quite often out of a fishet and fish that are headed for the headwaters of a stream might lie in a pool in an intermediate area for some time before advancing on to those waters.

Q. Where the stream fall is more or less stabilized do you find them migrating more in the night time than in the day time? [1023]

Mr. Mason: Does he know first. Do you know, Mr. Witness?

The Witness: Yes.

Mr. Mason: All right.

A. Yes.

Q. (By Mr. Bowles): Night migrants more than day time migrants?

(Testimony of John M. Hurley.)

A. Well, actually if they are in the stream it is hard to tell whether they are moving or not.

Q. With respect to your studies of these projects that have affected the fish life in the state of Washington, which has given you the more concern, the downstream migrant or the upstream migrants over the dam?

A. Well, I presently know much less about getting the downstream down and the upstream migrants up.

Q. Is your losses shown in your records substantially greater in that area of your investigation?

A. Yes. However, if you had a project that was large enough it is quite possible that your upstream mortality might be just as large.

Q. You spoke of some experiments that you were conducting in conjunction with the International Pacific Salmon Fishery Commission. Can you explain what that commission is, how it operates and its limitations?

The International Pacific Sockeye Salmon Fishery Commission was formed between Canada and the United States for [1024] purpose of preserving the runs of blueback or sockeyed salmon that are indigenous to the Frazier River. The Frazier River enters the Straits of Georgia in the northern end of Puget Sound just above the International Border Line and the fish swam into the Straits of Juan de Fucca and the San Juan Islands and out to the Frazier River. The fishery has participated in—both Canadians and Americans, the reason being

(Testimony of John M. Hurley.)

that it is an international problem, they are currently faced with the problem of the tremendous aluminum plants going in and placing dams on the tributaries of the Frazier and they are very much interested and they are forming this relationship between the power dams and fish.

Q. You have undertaken to conduct some experiments with respect to this sockeye run on the Skagit or the Baker Rivers as I understand it?

A. Yes.

Q. Now, in your experience have you ever seen a hatchery operation was was a successful operation in and of itself without natural spawning?

Mr. Mason: Mr. Examiner, I have a question on that.

(Question read.)

Mr. Mason: Mr. Examiner, I don't think this witness has given us any basis to answer that question in his testimony here, so far as I know he hasn't qualified as a hatchery specialist and I am sure they could get a witness if they could. [1025]

The Witness: Mr. Mason, I stated that I was assistant supervisor of the hatcheries for the State of Washington.

Mr. Mason: You are now?

The Witness: I have been.

Mr. Mason: For how long?

The Witness: From 1946 to 1948.

Mr. Mason: All right, I will withdraw my objection.

(Testimony of John M. Hurley.)

Presiding Examiner: I think the witness is qualified. Go ahead and answer.

A. Hatchery operations can't be divorced from any of our work because it is an integral part of it anyway. It has been our observation that a hatchery is valuable as a supplement to natural environment and not as a replacement for natural environment.

Q. (By Mr. Bowles): Do you find this is any more applicable, the answer that you just gave to the spring chinook runs of salmon and to the various other runs?

A. We have less success with the spring chinook salmon than any other salmon in the salmon hatchery operations.

Q. As I understand it your department has nothing to do with the steelhead operation in the State of Washington, that is left to the game department? A. That is correct.

Q. Now, in your operation at the *Aireal* Dam on the Lewis [1026] River, are there—I understood you to say that there were some runs of spring chinook coming into that? Have those been on an ascending or descending scale or have they held their own since that operation was started?

A. The spring chinook runs there have declined and they have gone as low as 19 fish on the Lewis River.

Q. How about the fall chinook?

A. The fall chinook are there in less abundance than they were right after the dam was put in.

(Testimony of John M. Hurley.)

They maintained themselves better than the spring chinook.

Q. The silvers?

A. The silver salmon is the most readily adaptable to the changes in its environment, because its tolerance is greater to those changes.

Q. How far do you transport these fish to the holding ponds? A. About 23 miles.

Q. You bring the downstream migrants down below the dam and replace them or are they released——

A. Some of them are released above the dam, but great numbers of them are also down below.

Q. Down below the dam? A. Yes.

Q. What has been your experience with relation to the mortality rates of fish as the distance to having to move them as [1027] the distance increases?

A. You mean the adults?

Q. Well, first the adults and then fingerlings, or however they are classified?

A. Well, we have devised hauling trucks that have allowed us to move these salmon for varying distances and we haven't—I suppose there is a limit to the distance you can haul them, but I think you would reach an economical limit before you would reach that—In other words, you could maintain—that biological limit. You could maintain the proper conditions in the truck outside of actual damage to the fish jumping at the sides of it, the economical limit would probably be reached first.

Q. Now, do you find in this operation at *Aireal*

(Testimony of John M. Harley.)

Dam any of the fish arriving at your racks and dropping back to spawn in the stream itself below the racks?

A. That is difficult to determine in a river the size of Baker or Lewis River, but salmon are not known to use a limited area below a structure affectively when there are places above the dam. They have a tendency to stay at the structure and try to ascend the river.

Q. Do they destroy themselves in that process?

A. Yes, that is the case we had on the Baker River when they went above the rack.

Q. Isn't that peculiarly true of the sockeye salmon? A. Yes. [1028]

Q. Now with respect to the success or failure of the runs that have been supposedly transplanted in the area above Rock Island and Grand Coulee, did you people put any regulations with respect to fishing operations that would have some affect or an affect on that?

A. Yes. There have been constant additions to the curtailments to the time the people were allowed to fish and the Chief of our Research Division has—is better qualified than I am to discuss them.

Mr. Mason: I wonder if you would speak a little louder, please?

The Witness: Yes.

Q. Now, isn't it a fact that in the event that Hell's Canyon and Ice Harbor Dams are constructed in the Snake River that every available spawning —every square foot of spawning surface in the

(Testimony of John M. Hurley.)

downstream area becomes much more desirable and important?

A. That is true regardless of where they go for their natural environment. We will most certainly lose all of it above Hell's Canyon and the area in the four reservoirs on the Lower Snake will be lost so far as salmon production is concerned, leaving only the salmon in the Clearwater. Of course, that is our major concern because Hell's Canyon and Ice Harbor are before congress now for appropriations and if those two dams receive their appropriation the fish in the upper Snake River will be [1029] virtually lost eventually.

Q. I incur from your last statement that salmon do not spawn in the black water pools?

A. The only fish that have been known to spawn in lakes or pools have been to an extent the sockeye, which is not one of the major races in the Snake River.

Mr. Mason: Major races where?

The Witness: Snake River.

Mr. Bowles: That is all I have.

Q. (By Mr. Mason): Mr. Hurley, with respect to the early fish ladder at the Baker Dam that you told us about, was the trouble there due to the difficulty in the fish finding the entrance, do you know?

A. Due to the fact that the ladder was too steep and too short and the hydraulic conditions that are necessary for modern fish ladders weren't present.

Q. That ladder was built some time ago, I take it? A. About 1926.

(Testimony of John M. Hurley.)

Q. Did your department at that time have jurisdiction over a ladder of that type? Did you approve it? A. I did not approve it.

Q. I meant your department?

A. It was put in as a part of an arrangement with the Department of Fisheries at that time and the salmon was put in in addition and was later abandoned. [1030]

Q. Was later what? A. Abandoned.

Q. How do the fingerlings get over Baker Dam again?

A. Through the penstocks or the spill.

Q. You don't know the proportion over each, or do you?

A. Not right now. I will about a month from now.

Q. Do you know what the run has been on the spring chinook on the Lewis River to date, if anything, if you know?

A. I haven't had a chance to check on it.

Q. Have you personally ever designed or supervised the design of any fish ladder?

A. Yes.

Q. Where?

A. For many places in the State of Washington, one on Chambers Creek.

Q. I don't want to go into a lot of detail. What was the biggest one that you worked on?

A. I worked on McNary.

Q. Did you personally design the fish ladder at McNary?

(Testimony of John M. Hurley.)

A. No individually—no person individually designed McNary. It was a matter of collective knowledge submitted to the fisheries. People made of the Fish and Wildlife Service.

Q. How about—what is the biggest one that you worked on for your department, where the State or Federal Government didn't enter into it?

A. There is one on Willapau Creek that I did. It is about 30 feet high and I participated in that design of Mud Mountain Power Facilities.

Q. That is essentially a cutting and hauling proposition?

A. I beg your pardon?

Q. That was a hauling proposition?

A. Yes.

Q. Very short ladders there?

A. Yes. I may make a point with you, Mr. Mason, that after a fish ladder has its entrance for the collection system and also the water control area it makes no difference how high it is. In other words, the intermediate pools are similar type and it is the water control and the fish entrance that are of primary importance and so on.

I might say that now we are working on a series of three falls of the Deschutes River in Washington, which will be 88 feet.

Q. The Deschutes in Washington?

A. That is three separate ladders some distance apart.

Q. I believe you gave some testimony on—I don't want to misquote you, but just for clarity—The up-

(Testimony of John M. Hurley.)

per part of the Metolius seemed to be similar to other streams?

A. I said generally, yes.

Q. You have no idea or do you have any idea of what streams in Washington have characteristics corresponding to the Deschutes [1032] in flow and temperature above the Pelton Dam Site?

A. Each stream of course has a great many differences but it would be in general characters similar to the ones in eastern Washington.

Q. Which ones did you have in mind?

A. The Yakima.

Q. Any others? A. No.

Q. Talking again about the Deschutes and the Metolius Rivers above the proposed dam site, do you know yourself where the spawning areas are above the Pelton Dam Site?

A. Not specifically.

Q. You told us, Mr. Hurley, that you had conducted, I say you, but the State Agency and the Federal Government has conducted an experiment at Bonneville, marking fingerlings to determine the percent of mortality, is that substantially what you testified to?

A. I said an experiment was conducted, but I didn't say by whom.

Q. I didn't mean to put words in your mouth. Who did it?

A. Fish and Wildlife Service.

Q. Did your agency participate in it?

A. In the collection of the returns.

(Testimony of John M. Hurley.)

Q. Can you tell us without going into too much detail how [1033] that occurred, from what you told us I don't know what was done to determine that 15. A. 15?

Q. I said 15.

A. The fish were taken in large parts in the spring creek hatchery which is the federal hatchery and they were all chinook salmon and they were marked by paired marks. I don't recall the specific marks that were used, but we examined the paired marks one of which was the left chin and the dorsel fin off of one and the other was the right ventral and the dorsal fin off the other group. Some of these fish would be released above the dam and the others below the dam.

Q. What did you do next after that?

A. Then the returns are compared. When the fish came back to the river then as adult fish.

Q. At what point did you examine the returning fish to determine the loss?

A. Wherever they were observed in the fishery or any hatchery that they might return to.

Q. Do you know what percent returned on each of the respective groups?

A. I beg your pardon.

Q. Do you know what percent returned of the two groups you used? In other words, what percentage did you get back on your fingerlings that you released above the dam? [1034]

A. I do not know the specific returns. That information will be published shortly though.

(Testimony of John M. Hurley.)

Q. Will there be a witness here that will have that information that you know of?

Mr. Mason: I will ask Mr. Higgs?

Mr. Higgs: Not that I know of, not with that particular information.

Q. (By Mr. Mason): If I asked you the same question with respect to the fingerlings released below the dam you would know that either of that group?

A. I can't understand what the importance of that particular figure is other than the differential between the two, but I do not have the figure.

Q. You have stated that, as I take it, that there was a definite percentage lost and I am merely exploring how you came to that and how good your sample was and whether it was a fair test and so on, which I think should be pertinent to the record.

That is all I am trying to get, Mr. Hurley, unless there is somebody else that knows more about it than you do, then that is the witness I would like to ask the question of.

A. Well, if Mr. Barnaby is going to testify, you could ask him. I do not know whether he is going to testify.

Mr. Higgs: He is not.

Presiding Examiner: Is the Resident Biologist from the Bonneville Project [1035] going to testify?

Mr. Higgs: No, sir.

Mr. Mason: That is all I have on that particular point, Mr. Examiner.

(Testimony of John M. Hurley.)

Mr. Higgs: Is Mr. Barnaby here?

(No response.)

Mr. Higgs: I don't know Mr. Barnaby, if he is here let him hold up his hand?

(No response.)

Mr. Higgs: He is not here.

Mr. Semic: Mr. Barnaby is in Canada at the present date.

Mr. Higgs: Not available.

Mr. Mason: I will go on to another subject.

Q. (By Mr. Mason): Is it my understanding, Mr. Hurley, that fingerlings will be released in the Pelton Project Reservoir from the hatchery as soon as it gets filled, is that the way you understand it?

A. I am not familiar with any concrete plan of operation over a period of years. In a program such as this they might try several places.

Q. I wanted to know what you understood was the plan to be as presently proposed, as to how fingerlings would be released.

A. I don't know.

Q. Did you make any assumptions?

A. I do not know they might release them in both places. [1036]

Q. Several times you used the term "In our opinion". I assume you are speaking for your department, are you not? A. I was.

Q. You spoke of having trouble with holding fish, the fish had a tendency to fungus up or be

(Testimony of John M. Hurley.)

affected by fungus and died. Do you know what the cause of that is?

A. Cause of the fungus?

Q. Yes.

A. Generally because they bruise or lacerate themselves by attempting to migrate and jumping at a rack or a wall or a pipe or whatever might be there and as soon as the wounds are opened up the fresh water, organism that cause the fungus attack the fish.

Q. Does the type of water or temperature or the food content have anything to do with fungus?

A. I don't think it would make any difference on the—but naturally those things are more apt to occur when optimum conditions are present.

Q. In answer to a question by Mr. Bowles, I don't know whether I understood you right or not when you testified. Did you testify that in your opinion or in your observation more adult migrate upstream in the night than in the day time?

A. I said it was difficult in major river systems to determine the proportion.

Q. Your testimony was to the effect that more migrate at [1037] night? A. Yes.

Q. There was? A. Yes.

Q. Now on what do you base that? What particular observation?

A. I was thinking of the middle creek rack.

Q. Are you familiar with the Bonneville Dam that when they pass in and out of the dam how they go? A. No.

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VOLUME III

TRANSCRIPT OF RECORD

SUPREME COURT OF THE UNITED STATES

October Term, 1954

No. 367

FEDERAL POWER COMMISSION, PETITIONER

vs.

[illegible] POWER COMMISSION OF
OREGON, ET AL.

ON WRIT OF

No. 13345

United States
Court of Appeals
for the Ninth Circuit

THE STATE OF OREGON, THE FISH COMMISSION OF OREGON, THE OREGON STATE GAME COMMISSION,
Petitioners,

vs.

FEDERAL POWER COMMISSION,
Respondent.

PORTLAND GENERAL ELECTRIC COMPANY,
Intervenor.

Transcript of Record

Petition for Review to Set Aside an Order of the Federal Power Commission

In Three Volumes

VOLUME III.

(Pages 681 to 1032, inclusive)

Phillips & Van Orden Co., 870 Brannan Street, San Francisco, Calif.

(Testimony of John M. Hurley.)

Q. You have given us testimony with respect to the sockeye. Do you know of your own knowledge whether or not sockeye go in the Deschutes River?

A. It is my understanding that they do not, that is, in any number.

Q. I believe you told us that you were the Assistant Supervisor at the Hatchery for the State of Washington? A. That's right.

Q. Could you tell us what—without going into any detail—what your experience in that work has been? Have you worked in hatcheries for some time, or were you in the administration?

A. Well, I started out as hatchery biologist, but I went out in the field and worked with the men in the hatchery.

Q. How long were you in that position?

A. Oh, probably two years. [1038]

Q. Where did you go from there?

A. Then I became administrative hatchery biologist and assistant supervisor of hatcheries.

Q. Of any particular hatchery?

A. All hatcheries in the state of Washington.

Q. How long were you in that work?

A. Altogether about seven years.

Presiding Examiner: Mr. Hurley, do they count fish at Bonneville, during the hours of darkness as well as during the day time?

The Witness: Yes.

Presiding Examiner: All night long?

The Witness: Yes.

(Testimony of John M. Hurley.)

Mr. Mason: I have one more matter, Mr. Examiner.

Q. (By Mr. Mason): You gave us some, not necessarily figures, but from opinions or some indications of the relative size of the runs now on the Lewis and Baker Rivers compared to what I considered to be natural runs before the construction, did you not, in your direct? A. Yes.

Q. Do you have anything that you can make available to us in the way of official figures of your department that would give us that information or reference to it?

A. We have no official figures on the Lewis River, but the [1039] figures on the Baker River are not reliable to the point that they would be of any statistical significance, but I have them from people's memory who were connected with it.

Q. With respect to the Lewis River, could you give us where we could find these figures?

A. The Cowlitz River testimony.

Q. That doesn't do us any good here.

My recollection was that there was some report that your agency had gotten up which went into that in some detail.

A. It has never been published, but we did send some figures on another report that we sent to the Pacific Power and Light Company and I would be glad to get those figures for you, if you would like to have them.

Q. If it wouldn't be too much trouble, I would be interested if you could

(Testimony of John M. Hurley.)

Mr. Mason: That is all I have, Mr. Examiner.

Mr. Higgs: I have a few questions.

Redirect Examination

Q. (By Mr. Higgs): Mr. Hurley, you stated to an answer to a question by Mr. Bowles, that the salmon hatchery at the Baker Dam is the—is abandoned? A. Yes.

Q. Will you state why that was abandoned and——

A. Well, I would presume because it was thought to be [1040] ineffective. Many times in the early days an arrangement was made whereby an agency would buy or build the salmon hatchery in exchange for the stream. At that time salmon hatcheries were thought to be more effective than they are today. There was a time when the prevailing thought was that salmon hatcheries could actually replace the stream.

We had a case on the Ilwa River where a power plant was built and they paid for a hatchery that cost $3500 dollars and as soon as they found out the type of hatchery they had was not doing any material good it was closed.

Q. You made some reference to fish ladders there. They were originally installed on an experimental basis, is that correct?

A. That was the first dam of that type.

Q. In 1925, I believe you said, or '26?

A. '26 and that ladder was an experiment and it failed.

(Testimony of John M. Hurley.)

Mr. Higgs: That is all.

Recross Examination

Q. (By Mr. Phillips): With respect to the hatchery doing supplementary work in the propagation of salmon, does that necessarily mean on the same stream or a hatchery on a particular stream, or is it a supplement to the whole program?

A. A hatchery is generally expected to serve certain water heads, or certain areas. We have utilized hatcheries for other [1041] watersheds to a limited extent.

Q. In other words, they are transported from one stream to another from the hatchery?

A. Wherever it is necessary, however, we found that there is a limit to the amount of success that you can get out of it if the streams are of different character.

Q. You are contemplating an increase in your hatchery facilities on the Lewis River, aren't you?

A. Yes.

Q. In spite of the fact that you only got 98 salmon in one year that you referred to?

A. I think that is a little over simplification of the statement. That was just one race. There are several races of salmon in that stream.

Q. 19 chinook salmon?

A. That is right.

Q. Is the mortality on that stream so great that you didn't have enough eggs to run your hatchery?

Mr. Higgs: If the Examiner please, I don't be-

(Testimony of John M. Hurley.)

lieve that is proper recross. I asked two questions on redirect. I have no objection to counsel going into anything that is pertinent to those two questions, but if he is going back.

Presiding Examiner: We have been very liberal on this point.

Do you have an extended examination on this point, Mr. Phillips? [1042]

Mr. Phillips: No, just a few more questions.

A. Would you state your question again, please?

Q. (By Mr. Phillips): I was wondering if your experience on the Lewis River was due to the fact that there were not sufficient salmon in the Lewis River to provide you with sufficient eggs for your hatchery there. You haven't come to that point yet, have you? A. Not yet.

Q. Have—you have been asked about the plan on the Pelton Site. How extensively have you studied the plans with respect to the fish facilities in connection with the Pelton Site?

A. Well——

Mr. Higgs: If the examiner please, that was brought out on direct examination and this is going into and hashing over the same thing and I object to it.

Mr. Phillips: If he hasn't studied them why doesn't he come out and say so.

Presiding Examiner: Apparently this is an attempt to accentuate his lack of knowledge of this project which he has already stated.

(Testimony of John M. Hurley.)

As I understand it Mr. Witness you did look over the plans very thoroughly, is that right?

The Witness: I looked at the plans and the plans were only of a rudimentary nature and no analysis of such a plan could possibly be made. [1043]

Q. You didn't look at the designors plans, then I understand, is that correct?

A. I saw only one plan and that didn't have any others to compare with it.

Q. You only saw the original plan which was for the dam only?

A. I understand the plans are of a rudimentary nature and not worthy of qualify of analysis at that time.

Q. That is what you understand?

A. Yes.

Mr. Phillips: That is all.

Q. (By Mr. Bowles): Mr. Hurley, a couple of questions with respect to this Lewis River Operation. Is it a fact that the primary object of your expansion up there is an attempt to increase your silver salmon production?

A. Yes, and to maintain as many of those that are now there that are possible. We don't know what the possible figure will be.

Q. Thank you.

Mr. Bowles: That is all.

Presiding Examiner: Mr. Mason?

Mr. Mason: I don't have another question of the witness directly, but I would like to ask Mr. Higgs, there has been a lot of testimony here from Mr.

(Testimony of John M. Hurley.)

Hurley with respect to Baker and [1044] Lewis River and other installation in the state of Washington I wondered if it would be possible to have in the record from the State of Washington a report which is similar to Exhibit 2 which is the Report of the Fish Commission of the State of Oregon for statistical purposes?

Mr. Higgs: Do you have something similar to that?

The Witness: We have our annual report, if that would be satisfactory, the '51 will be out shortly.

Mr. Mason: This includes the year ending June 30, 1949 and that is to June 30, 1950. Is your report on the same basis?

The Witness: We have a report up until '51.

Mr. Mason: What does the last report cover, what period?

The Witness: The year immediately proceeding the 1951. May, or April 1950.

That covers substantially the last period covered in Exhibit 2.

Mr. Mason: Would it be possible to have copies of that for the record?

Mr. Higgs: Can we get some?

The Witness: Yes.

Mr. Higgs: Will you see to it that I get some?

The Witness: My answer is if I can get them.

Mr. Mason: I take one if you can get them.

Mr. Higgs: I will do the best I can.

Mr. Mason: That is all I have, Mr. Examiner.

Presiding Examiner: There is one question that

(Testimony of John M. Hurley.)

I want to ask you before we recess for the noon hour.

I want to be sure that I understand you correctly, because it seemed to me that you testified that height of a fish ladder was not of much consequence in passing fish over a high dam as long as there was proper attraction water and the fish could be brought into the stream. Did I understand you right on that?

The Witness: No, I think you misunderstood me. Mr. Mason was discussing the design of a fish ladder and it had no reference to a successful operation at that point. We were discussing designs and the point that I made was that the critical design of the ladder rests with the water and the entrance controls and the collection system and as far as the design is concerned, the intermediate pools are all similar to each other.

Mr. Higgs: Regardless of the height?

The Witness: In other words, if you had a ladder that was ten feet high and had proper water control and proper entrance conditions for the fish, why the intermediate steps between the entrance and the next ladder were designed the same way, they would be similar to each other. In other words, the pools are all identical.

Presiding Examiner: Yes.

The Witness: I just meant that the design from a hydraulic standpoint was no different.

Presiding Examiner: You didn't mean there was

(Testimony of John M. Hurley.)

no limit to [1046] what fish could cross in height, did you?

That Witness: That is right.

Presiding Examiner: I seemed to have gotten that impression from your answer, but I can see now that was a misapprehension.

We will now be in recess to meet again in this room at 2:00 o'clock this afternoon.

The witness is excused. * * * * * [1047]

CHARLES CAMPBELL

was called as a witness, and having first been duly sworn, was examined and testified as follows:

Direct Examination

Q. (By Mr. Higgs): Will you state your full name for the record, please?

A. Charles J. Campbell.

Q. Where do you reside, Mr. Campbell?

A. Portland.

Q. What is your business or occupation?

A. I am a biologist with the Oregon State Game Commission. [1052]

Q. For how long a period of time have you held that position?

A. About ten years, ten and a half years.

Q. Do you hold any other position in the Oregon State Game Commission? Are you in charge of any particular——

A. I am Chief of the Department of Basin Investigation.

Q. Just describe briefly the nature of your

(Testimony of Charles Campbell.)

duties, both as a biologist and chief of Basin Investigation?

A. My duties as a biologist during earlier years when employment was carrying on research projects, getting biological data on various screens in the state primarily, of recent years there has been a great deal of multiple use and also less multiple use when the use of term water development in various stations in the state river basins.

They have caused us so much concern that it was necessary to set up a department on those and that has been my duty. These programs were brought on by primarily dam building agencies, such as the Bureau of Reclamation for the Army Engineers, the various private and public power companies. We have a rather extensive course—force of field men and I am able to draw from them for information from which to determine the effect that various proposals may be expected to have upon the fish and wild life resource which the Game Commission has a good responsibility to administer from this information in our hands. I try to include what these effects will be in a report and transmit it [1053] to the Commission for decision.

Q. Do you get into the field, so to speak, often in connection with your duties? A. Yes, I do.

Q. What is your education?

A. I am a bachelor of science degree in Fish and Game Management which was under the Department of Zoology at Western States College. I attended the same school for many years taking

(Testimony of Charles Campbell.)

graduate work in wildlife management. At the same time I taught a course in fresh water biology.

Q. At Western State? A. Yes.

Q. Could I ask you how long you have been employed for Oregon State Game Commission?

A. About ten and a half years. Prior to that I worked in biological survey work for the United States Forest Service and before and after leaving school.

Q. What other work have you done in addition to what you have already testified to?

A. I think I covered anything that would be pertinent, Mr. Higgs.

Q. I see.

A. The biological work while in school might be considered education and educational benefits were certainly more remunerative than the monetary benefits from them. [1054]

Q. Are you familiar with the Deschutes River and its tributaries in the State of Oregon?

A. Yes, I am. By that I don't intend to imply that I have been on every rock on the Deschutes, but I have been on many parts of the Deschutes and quite a few of its tributaries. I am fairly familiar with it, with the stream.

Q. Are you familiar with the application in this case, the Application in Federal—Potrland General Electric Company Federal Power Commission Project 2030? A. Yes, I am.

Q. Have you examined the plans of the so-called Pelton Dam?

(Testimony of Charles Campbell.)

A. I have examined all of the maps and plans that were given to the Fish Commission and I have examined those.

Q. Are you familiar with the Pelton Dam Site on the Deschutes River? A. Yes, I am.

Q. Have you made a study of this proposed project with respect to its effect, if any, on the fishery of the Deschutes River and its tributaries and the Columbia River?

A. Yes, I have been familiar and have been working with that for some time. I haven't done all the work myself as I explained before, we have a staff and we all work together on such things. I may draw upon them for information for such things that are applicable. [1055]

Q. In this application, have you prepared a statement or made any notes from which you are prepared to testify concerning the position of the Oregon State Game Commission with respect to this application? A. Yes, I have.

Q. Will you read that statement or testify from that, whichever you prefer?

A. I would be glad to read it whichever you prefer. [1056]

Presiding Examiner: Mr. Higgs, we are making a record here, a written record, primarily; there is no effect to be made by any oral presentation unless this witness plans to interpolate as he goes along, as he reads it.

Since it is going to be placed in the transcript as he gives it, I can't see any particular purpose in

(Testimony of Charles Campbell.)

his giving it orally, and taking up time which might be better used for something else.

I hope you don't misunderstand me; I would like to hear him; but, if we could just take, say, a 10 minute recess and let the parties read this now, they could almost begin cross examination immediately.

Mr. Higgs: Well, the reason I did this was to facilitate matters here; I understood you were pressed for time.

And, I will ask Mr. Campbell if there is anything there he wishes to elaborate on; I believe he should have that privilege.

Presiding Examiner: Oh, yes.

Mr. Higgs: Because other witnesses here — I think the Examiner understands my position: I don't pretend to be an expert in the matter of hearings before the Federal Power Commission, and I sort of govern myself, tried to educate myself this last week end—I have seen witnesses for the power company, particularly, read statements in; I thought, of course, it would be quite proper for me to do so. [1057]

Presiding Examiner: It will, and if you wish to you may; I was just thinking——

Mr. Higgs: I don't want to bore the record, nor do I want to deprive the witness of any statement or elaboration he might want to make in connection with his testimony.

He has prepared a map, here, a copy of which I have submitted to counsel and the Commission

(Testimony of Charles Campbell.)

and the Staff, and I think he would want to testify with respect to that.

Presiding Examiner: I hope you understand we are not trying to cut you off, or anything like that. Your statements are going to be as fully given, as far as the record to the Commission is concerned, as if you had given them orally.

Mr. Phillips: Mr. Examiner, just assuming that this witness also will be identifying this 1949-1950 report of the Oregon State Game Commission——

Mr. Higgs: Yes, that's right.

Mr. Phillips: These could all be put in, whichever way you decide to proceed; we could have an opportunity to cross examine him if—after they have been presented.

Q. (By Mr. Higgs): Mr. Campbell, will you take the 1949-1950 Oregon State Game Commission Report? I will ask you whether or not that is an official publication of the Oregon State Game Commission? A. Yes, it is. [1058]

Mr. Higgs: I will ask that to be marked as an exhibit.

Presiding Examiner: The Biennial Report of the Oregon State Game Commission, 1949-1950, will be marked Exhibit No. 29 for identification.

(The document above referred to was marked for identification as Exhibit No. 29.)

Mr. Higgs: I think that speaks for itself.

Q. (By Mr. Higgs): Did you intend to refer to this, Mr. Campbell, in your testimony?

(Testimony of Charles Campbell.)

A. Not necessarily; that was primarily for general information, that the Staff and the Examiner appeared to find desirable.

We had similar publications for the other agencies involved, and we thought this would be just as well.

Q. I see.

Now, in addition to this witness statement, you have prepared an Upper Deschutes draining ground, spawning survey?

A. I would like to explain that for the benefit of those here.

Q. I wish you would; do you have a copy of that in front of you so that you can talk about that?

A. I can see it from here; I know what it's all about.

That map——

Presiding Examiner: Let's get that identified, here. [1059]

The Witness: That's in 3 sheets——

Presiding Examiner: I understand the Reporter does not have the adequate number of copies, but for identification purposes I am going to ask that the Reporter mark the map entitled, "Upper Deschutes Drainage & Spawning Ground Survey, Sheet No. 1," as Exhibit 30-A; Sheet No. 2 will be 30-B; and Sheet No. 3 will be 30-C.

(The documents above referred to were marked for identification as Exhibits Nos. 30-A, 30-B and 30-C.)

(Testimony of Charles Campbell.)

Presiding Examiner: Is it understood that the proper number of copies will be submitted later?

The Witness: That's right.

Q. (By Mr. Higgs): Calling your attention to the documents marked for identification, 30-A to C, inclusive, did you make a map of the—or sketch —of the Upper Deschutes Drainage and Spawning Ground Survey?

A. The map in question, the exhibit in question, was prepared by one of our staff members, yes; who is familiar with the area. It is intended to go with this brief written testimony.

The figures on page 2 that you will find in the written testimony, were taken largely from this map.

The legend on the map is self-explanatory, and I don't believe it will be necessary to say anything on that. The mileage [1060] figures will necessarily be somewhat approximate, because you are all familiar enough with maps to know that a stream is a lot more crooked than some of them are there, and the figures have been taken from the map, with a map measure; therefore, they probably wouldn't coincide exactly with actual stream mileage.

Q. Now, is there anything in connection with the written statement which you have prepared which you would care to elaborate on, or explain?

A. I believe this statement is rather clear, and in the setting forth of our position if there is anything needed, it will probably come out later.

Q. Then, it does completely and fully state the

(Testimony of Charles Campbell.)

position of the Oregon Game Commission in this matter; is that correct? A. Yes, sir.

Mr. Higgs: That's all.

I would offer in evidence Exhibit 30-A to C, inclusive, for identification.

Presiding Examiner: I will defer the ruling on that pending cross examination.

Mr. Phillips, do you think we could gain a little time if we took a 10 minute recess while the people looked at this statement?

Mr. Phillips: I think we could.

Is that agreeable with you, Mr. Mason? [1061]

Mr. Mason: Yes, sir.

I will ask the people who are here not doing this work, to try to get away, so you won't distract them, the counsel who are going to read the statement.

We will recess for 10 minutes.

(Short recess.)

Presiding Examiner: Come to order, please.

At this time I am going to ask the witness to come back, and I will now ask the Reporter to insert in the transcript as if it had been read by the witness a 5-page statement which he has presented here.

The Witness: My statement is as follows:

Protest to granting a license for proposed project No. 2030 by The Oregon State Game Commission, June 1951.

(Testimony of Charles Campbell.)
(First page of statement.)

In 1949, the Northwest Power Supply Company made state and federal applications for permits to construct a hydroelectric project known locally and to the applicant as the Pelton Project and to the Federal Power Commission as Project No. 2030. As a result of local hearings which fully brought out the present and potential values of the Deschutes River for fish production and non-commercial public use as opposed to the limited power that would be developed, a state permit was denied by the Fish Commission of Oregon. Statements *prenting* all pertinent facts were filed with the Federal Power Commission by the Game Commission [1062] and other agencies at that time. A federal license was not granted.

Recently, the request for this project has been renewed with certain changes designed to overcome some of the objections of the fishery interests. After careful consideration of these changes and the fish facilities that would be supplied, the Fish Commission has re-affirmed its refusal to grant a permit for construction of the Pelton Project. This is a strong argument for the refusal of the federal license. The Game Commission has also examined the plans of the new proposals and considers them inadequate to protect or provide for spring chinook salmon, summer steelhead and rainbow trout. It therefore wishes to re-affirm its original position in objecting to the granting of a permit for the construction of the project.

(Testimony of Charles Campbell.)

Migratory fish when caught with hook and line and the so-called non-migratory game fish are the responsibility of the Oregon Game Commission. The Pelton Project would be very detrimental to this resource. The most obvious effect would be the complete and permanent stop to any fish migration past this point. Both spring chinook salmon and summer run steelhead trout are taken on (Page 2 of written statement) sport gear in the Deschutes, and these fish are dependent upon spawning grounds many of which are above the Pelton site. There are in excess of 700 miles of stream above the Pelton site. [1063] The 154 miles that have been surveyed contain various grades of spawning gravel. The 42 miles presently not accessible are potential spawning areas. Further survey will expand these figures. In 1951 the Game Commission's fishery management program reached a stage of development where it became advisable to obtain summer steelhead eggs on an experimental basis. The necessary adult fish were easily taken in a Deschutes tributary whose mouth is about 25 miles above the Pelton site. The fish had matured under natural stream condition before being spawned. The presence of 38 steelhead actually counted in spawning condition in a location about forty stream miles above the Pelton site exemplifies the importance of the upper tributaries of the Deschutes River to the maintenance of such fish runs for both sport and commercial harvest. The Deschutes River is famous for the large size of its steelhead. It is considered to be one of the best steelhead streams in Oregon and

(Testimony of Charles Campbell.)

is nationally famous as one of the outstanding steelhead streams of the continent.

The proponents feel that such fish could be maintained through hatchery operations, but perhaps do not fully understand the difficulties involved. Both spring chinook and summer steelhead enter the rivers a considerable time before their sexual products mature and are deposited in the gravel of the stream bed. During the intervening period of about two to four months for salmon and five to eight months for steelhead, these [1064] fish are dependent on abundant cool water and other factors not well understood that nature supplies in upper stream and tributary areas. The resulting young fish remain in the stream from one to two years before returning to the sea. Duplication of all these conditions artificially has never been successfully accomplished on a large scale with spring chinook and summer steelhead. The substitution of artificial methods for the natural environment was tried on Washington's Lewis River when Ariel Dam was built with the result that (Page 3 of written statement) by 1949, the spring chinook run had dwindled to 19 fish. Perhaps eventually adequate techniques will be developed but they are not sufficiently advanced now.

The stream section between the power dam and the re-regulating dam, a distance of about four miles, would become an area of violently fluctuating river or forebay. *Is* value to the fishery resource and to the angler would be practically eliminated.

(Testimony of Charles Campbell.)

The four miles of re-regulating area is now supporting considerable angling. This would become another reach of river irretrievably withdrawn from other public use. Three roads now provide access to this area and to the vicinity of the Pelton site for sport fishing. There are at least three trails leading into the impoundment area as well.

There are five major spawning gravel areas in the stretch between the Pelton site and the re-regulating dam. They are the Disney, upper and lower Porter riffle and two others of [1065] uncertain name; gravel is excellent and extensively utilized by rainbow as evidenced by the presence of spent and ripe fish. Approximately 25 per cent of the distance between the dams consists of spawning gravel that would be lost from production.

Shallow reservoirs of large area such as Crane Prairie are sometimes productive but in contradiction, the Pelton Reservoir by reason of its 150' depth, and eight mile length with precipitous shoreline cannot be expected to produce good fishing. Its location in a narrow canyoned precludes the presence of much shallow productive water and peaking operation would cause fluctuation that would further lower its productive capacity. That the fishing to be found in such an impoundment would replace or improve upon that now furnished by the river seems very doubtful. In all probability, it would furnish more suitable habitat for the trash fish now present in the area which would increase at the expense of any possible trout pro-

(Testimony of Charles Campbell.)

duction. There are two species of suckers, chiselmouth, squawfish, roach, and (Page 4 of written statement) possibly other minnows in the Pelton region. Lake Merwin, the impoundment back of Ariel Dam on Lewis River, furnishes almost no sport fishing and it is a reservoir similar to the Pelton impoundment.

South Twin Lake is an excellent example of the history of the effects of trash fish on a trout population. When the lake was treated with chemicals to destroy the trash fish, six trout and thirty tons of trash fish were found. With no [1066] trash fish present, nineteen tons of trout have been harvested by anglers in six years. Ochoco Reservoir on the Crooked River tributary of the Deschutes was furnishing inferior angling because of the presence of trash fish until they were destroyed and trout were planted. It would be impossible to destroy the trash fish in the Pelton Reservoir because the chemical used would destroy the trout in the lower river, dilution by the tributaries would nullify the effect, and the extensive streams feeding trash fish into the reservoir could not be cleaned of their fish populations. Wickiup Reservoir, another impoundment on the Deschutes, has a steadily increasing population of trash fish which now approaches the excessive ratio of 300 trash fish to one trout.

That stream fishing has a large and definite economic value to the region and to the state is demonstrated by the results of a season-long survey

(Testimony of Charles Campbell.)

on a different section of the Deschutes above that accessible to migratory fish in 1950. The survey showed that angler expenditures for their fishing, exclusive of capital investment in equipment, were close to $2,000 per mile of the section studied. Such data are indicative of the trout fishery values, present or potential, involved here in addition to those of the salmon and steelhead.

The value of the sport fishery in addition to that of the commercial fishery and a large segment of the Lower Columbia Fishery Development Plan would be destroyed or jeopardized to [1067] to add 120,000 kw for a few hours per day, and about 39,000 kw firm power to the Northwest Power Pool. Undeveloped projects in other parts of the Columbia Basin where no serious fishery problem exists present an (Page 5 of the written statement) opportunity for continued hydroelectric development without destruction of another natural resource.

There is no guarantee that if this dam is constructed, others would not be built below it. The Pelton Dam could be the beginning of the total destruction of the Deschutes for anadromous fish production and further limitation to resident game fish production. The history of water utilization is a record of continual sacrifice to the fishery resource to the expansion of other uses. The fishery resources of the state and the attendant utilization of public waters for fishing purposes are being continually restricted. It seems incredible to

(Testimony of Charles Campbell.)

us that one of the key tributary streams of the lower Columbia River fishery development program must be sacrificed before exhausting every other potential site. The fact that by 1950, over 250,000 persons were buying licenses to participate in the Oregon sport fish harvest shows a direct interest in this use of public water by a large segment of the people. Coordinated planning for water development must recognize this fact and some few streams at least must be reserved for fishery use.

Certainly an adequate supply of hydroelectric energy for [1068] the Northwest Power Pool is not dependent on the relatively small amount that can be produced by the Pelton Dam. Until the time comes when the development of this small amount of power is essential to the economy of the country, the Deschutes River should be dedicated to the maintenance of the fishery resource. This is not an instance where compromises with power interests can be made without undue sacrifice detrimental to the fishery resources.

The Oregon Game Commission, by reason of brief submitted in 1949 and the testimony of this date, is opposed to the construction of the proposed Project No. 2030, the Pelton Dam, on the Deschutes River, and respectfully requests a rejection of the application for a license for this project submitted by the Northwest Power Supply Company.

Presiding Examiner: Unless there are objec-

(Testimony of Charles Campbell.)

tions to the procedure, I will ask that cross examination begin.

Do you want Mr. Bowles to go first?

Mr. Phillips: I think that will save time.

Mr. Mason: May I make one suggestion to you, Mr. Examiner: there have been several references to this statement by page number. I want it to appear in the transcript with the original page numbers so we can follow through on the discussion that was had on this that was put in before this was copied into the record. I believe it might be helpful. [1069]

Presiding Examiner: I will ask the Reporter to indicate the pagination on the original statement in the transcript in addition to the regular transcript page; I think you can put these page numbers in with parentheses as they occur.

Now, Mr. Bowles, do you have questions?

Mr. Bowles: Yes.

Cross Examination

Q. (By Mr. Bowles): I notice that you refer in this statement, Mr. Campbell, to some investigation that your department made in 1951 with respect to taking steelhead eggs from a tributary of the Deschutes; would you mind telling us which tributary that was?

A. That was Squaw Creek, a tributary whose mouth is about 25 miles above the Pelton dam site.

Q. Now, do you know of any place at the present time where summer steelhead have been success-

(Testimony of Charles Campbell.)

fully held for the period between the time they came into the stream and the time that they matured so they were ready to spawn?

A. I don't know of any place where that has been done successfully, no, on a large scale, at all.

Q. Now, you made some reference here to spawning areas and so forth; and would you mind explaining what your terminology means, there? What is a spawning area, so the people reading this record some distance from where it is being taken will know what we are talking about here? [1070]

A. A spawning area is the portion of the bed of a stream where there is well aerated water; the depth can vary considerably with species—the depth of the water, that is—the gravel can vary considerably in size, also largely with species.

You usually find them in a riffle area, or the tail end of a pool area; the spawning fish disturb this gravel by actions primarily of the tail, and as they disturb it, the current of course carries it downstream a short distance, and in the process a depression is formed.

The female fish deposits the eggs and the male fish deposits the milk and the sperm in this depression--I should say part of her eggs and part of the milk; then you usually move up immediately up stream from that, do the same operation over, and in that process the first depression is filled up; therefore, the eggs are buried in this gravel in well aerated running water, which percolates

(Testimony of Charles Campbell.)

all through it and furnishes the conditions necessary for the further development of the egg.

Q. Now, how long do the young steelhead of this particular tribe, summer run, stay generally in the fresh water, prior to their seaward migration?

A. Generally from one to two years; there will be extremes on both ends, but the majority will be within that period.

Q. And then it's necessary that there be an area that's available as a food production area to successfully rear these fish to a point of migratory movement? [1071]

A. That's right, yes.

Q. Do you find such a situation current in the Deschutes watershed above the site of the Pelton Dam? A. Yes.

Q. Now, below the site of the re-regulating dam, and on down the river, is there any substantial spawning areas that are in use, there, by steelhead trout of that stream?

A. Yes, of course; the Warm Springs River is below the site of the Pelton Dam.

Q. Is there any in the main stream of the Deschutes?

A. I believe there is some; we have found some trout spawning in the area of the re-regulating dam, and I assume there would be some below that.

Q. Is it your opinion from your studies of this river that the upstream area, where the greater portion of the spawning takes place, as I under-

(Testimony of Charles Campbell.)

stand it from your testimony, here, and the statement that you have had inserted in the record, furnishes the greater proportion of the sport fishery for that lower stretch of river?

A. Furnishes a large portion of it, in my opinion, yes. It is in the upper waters of the tributaries and on up in the main stem itself, primarily between the Pelton site and the lower portions of the Metolius River that the adult steelhead and the adult salmon will winter. We also find the steelhead on up above that area that I just mentioned, a considerable distance, [1072] where they are found up by Steelhead Falls. I believe that—it may or may not be indicated on that map; it's quite a number of miles above that.

Q. And has the Game Department determined that the sport fishery in the section of river that will be affected by this dam, is of some importance economically to the State?

A. We know that such a fishery anywhere in the State is of considerable economic importance, yes; the steelhead fishery on the Deschutes, we have not as yet gotten figures on that particular one. If we had, they'd be in here.

Q. Do the steelhead, as a fish, furnish any of the parent stock for your sport fishery—now, I don't mean directly the steelhead themselves, but do some of these young steelhead landlock themselves?

A. I see what you mean: whether they landlock themselves or not, they will enter the trout fishery,

(Testimony of Charles Campbell.)

yes, because those that stay in that watershed 2 years or longer, are going to reach a size in excess of 6 inches, which is the legal limit for trout in that area; and they will enter the sport catch as immigrant fish, as well as adults later.

Q. No, in your investigations of projects that have pooled up the waters in the various areas, have you found these steelhead in sports fisheries; do they spawn in these pooled areas?

A. No, they do not. [1073]

Q. Now, I noticed you mentioned that the various types of trash fish here, that you have; now, what and how do they create a problem from the management of the game fish resources, Mr. Campbell?

A. The so-called trash fish are generally—and the only species I can think of right now are more prolific than the trout—in other words, they lay more eggs, and therefore they have a greater reproductive potential. They also live on essentially the same organisms as do the small trout.

Any body of water, pond or otherwise, has a definite capacity for producing forms of life. These trash fish will usually find conditions in an impoundment more suitable to their reproduction than they were previously, depending on where the impoundment occurred.

With their higher reproductive potential—it seems to increase rather rapidly—and the productive capacity of the area is taken up in producing

(Testimony of Charles Campbell.)

all these trash fish, and therefore, it's not available to produce trout.

Q. Is that from a lack of spawning area to trout, or is that from a lack of food to supply both groups of fishes?

A. Oh, in this instance it would probably be more from a lack of food to keep both of them going, because if they don't find something in this part of the river, they will move on up the river; but, they will not increase, in my opinion, with anything near the rapidity that the trash fish would. [1074]

Q. Now, mention has been made here of the Crane Prairie and the Wickiup Reservoirs; they are both in this watershed, and there has been some attempt to draw comparisons as between those 2 reservoirs and the one that's proposed in this area.

Have you made any study with respect to that particular situation, Mr. Campbell?

A. I'm familiar with the reservoirs you mention; they are not very comparable, in my opinion, with the reesrvoir that would form after the Pelton Dam—they are both rather extensive reservoirs with a large percentage of shallow water, which, of course, is the opposite of what would occur if Pelton is built.

Q. Now, this shallow water, how does that affect the situation?

A. With deep water you get very little light penetration, and light is necessary to most forms of

(Testimony of Charles Campbell.)

life, in one way or another; the bottom of the food chain, it's essential.

So, in the very deep areas, there's very little food produced. Of course, they're out of the spawning grounds, so the productivity of a body of water is limited to quite an extent in the amount of water—oh, say, the more you get away from 20 feet, would be considered, in making up stocking tables—would be considered better than water that's 50 feet deep.

Q. Now, this Crane Prairie reservoir, how long has that been open to the general public for fishing; how long has it been, [1075] do you know?

A. Oh, it's been open to the public for fishing for approximately—oh, I think this is the second season.

Mr. Mason: I didn't get the last answer.

The Witness: I believe it's the second season.

Q. (By Mr. Bowles): Well, have the results in that area given the Game Department any basis on which they can determine what the eventual productive capacity of that area will be?

A. You mean fairly productive—as mentioned before, there are no trash fish in the picture at Crane Prairie; trout are the only fish that are present there; there are some good spawning tributaries for them, and they are still producing good fish in there.

Q. Now, with respect to Wickiup?

A. Wickiup is somewhat different; that was first impounded, I think it was 1943; it's a rather

(Testimony of Charles Campbell.)

recent impoundment. The story on most impoundments has been rather good fishery the first 3 years when this newly flooded dam same into production; it then generally tapers off and will level off eventually at a point generally considerably lower when the peak has been reached. It still produces pretty good fish, but here we have a trash fish problem that's different from Crane Prairie in that respect; they are in there and are increasing very rapidly. [1076]

Q. Is that becoming an increasingly expensive burden to the Game Department?

Mr. Mason: What's that? I didn't understand the question.

Mr. Bowles: I will restate it.

Q. (By Mr. Bowles): Has the State Game Commission had an increasing expense to handle the trash fish problem in Wickiup?

A. If it continues and gives us reason to believe, it won't be as much a matter of expense; it's going to be pretty much impossible to do anything about it. It's not a reservoir that we can go in and poison completely and clean out—most of the Deschutes River below it, which wouldn't be economically sound, among others; besides the tremendous size of the reservoir itself, and all the water between there and Crane Prairie would have to be treated too. [1077]

In other words, we are going to increase and we are going to have to live with it.

Q. Does the state have any stocking in that

(Testimony of Charles Campbell.)

area, in the Crane Prairie or the Wickiup Reservoir?

A. We stock Wickiup, yes, I am not sure about Crane Prairie.

Q. Has there been a continuous program?

A. We have stocked Wickiup annually for several years, I believe.

Q. Is that in your opinion one of the reasons that the Sports Fishery has been maintained at its level there? A. That has helped, yes.

Mr. Bowles: That is all I have.

Q. (By Mr. Phillips): Mr. Campbell, on your statement on the first page, the first paragraph you indicate after the first sentence that there was some local hearings which fully brought up the present and potential values of the Deschutes River for fish production and no commercial views and you end up about statements being filed with the Federal Power Commission and the license was not granted.

What kind of hearings do you understand were held?

A. There was a hearing held before the State Hydroelectric Commission here in Portland and at least two other hearings pertaining to the Deschutes were held in the Legislature in that year.

Q. There were none held before the Federal Power Commission [1078] were there?

A. No, not before the Federal Power Commission.

Q. What about the statements that were filed

(Testimony of Charles Campbell.)

with the Federal Power Commission, what statements were filed with the Federal Power Commission by your commission?

A. Well, we filed a written statement in July of 1949 with the Federal Power Commission.

Q. With the Federal Power Commission?

A. That is correct.

Q. The reason the license was granted—was not granted is because there was no hearing on this thing by the Federal Power Commission?

A. That is correct.

Q. The reason no license was granted is because there has been no hearing, isn't that a fact?

A. The license was not granted.

Q. They have never had a hearing on whether or not to grant it? A. That is right.

Q. At the top of page two you cover some of the spawning areas on the Deschutes River, how much area is covered by those spawning grounds?

A. You mean acres?

Q. Well, acres or square yards, or however you measure them.

A. I couldn't tell you. [1079]

Q. Did you make any measurement of them?

A. We haven't as yet been able to make that detailed a survey by getting square yards and all the gravel that is in the area.

Q. Isn't it referred to on your map, known as Exhibit 30-A, 30-B and 30-C?

A. The areas on that map I believe, cover where our field men on foot or by boat and they

(Testimony of Charles Campbell.)

indicate the areas on the river in which they can consider spawning gravel to be good for that.

Q. When did they make those surveys?

A. Most of them have been made this spring. Some of the information was taken from surveys in 1949.

Q. Who made them?

A. The majority of them are made by Mr. Montgomery.

Q. How long did he spend in there?

A. He has been working in that area, weather permitting since last winter.

Mr. Mason: What is the last answer?

The Witness: Since last winter.

Q. (By Mr. Phillips): Is he still in there?

A. Not at the present moment. He is still working in that area, yes.

Q. When did he make the map?

A. The original of the map was made, oh, a month or six weeks ago. [1080]

Q. These are copies of the map and the original was filed in the State Game Commission?

A. Yes, sir. Black lined prints of the original map.

Q. You made no measurements of the areas?

A. Not in the terms that you were inquiring about?

Q. These maps or the survey were made by you? A. That is correct.

Q. All you know about them is what Mr. Montgomery tells you?

(Testimony of Charles Campbell.)

A. Montgomery and other biologists in our staff in that area. Of course, there are a number of areas in there that I have seen, yes.

Q. How many of the areas have you seen on the Deschutes around the Pelton Site?

A. I have been in the Pelton Area from Squaw Creek and I have been on Crooked River and several places. I have been along sections of it. Considerable stretches of Crooked River and other locations.

Q. Could you tell us on the map where you have personally seen any spawning areas above the Pelton Site?

A. I have seen gravel areas right at the Pelton site where we have taken trout which was spawning, which was evident to me that they were spawning in that locality. The eggs were coming right out of them and that informs me that they were spawning in that immediate vicinity. [1081]

Q. Have you seen salmon spawning there at any time at the Pelton Area or about there?

A. No, I have not.

Q. Never have?

A. No, personally. I have seen immature salmon in that area that was pretty good evidence they were spawning above.

Q. How long ago have you seen in mature?

A. I haven't seen mature salmon above the Pelton Site. I haven't been there at that time of the year.

Q. When did they usually come in there?

(Testimony of Charles Campbell.)

A. They are coming in there now.

Q. You have never been there in the summer time, comparable?

A. I haven't been at the part of the Metolius —I haven't been in the canyon of the Metolius and I haven't been where I know that salmon can be seen right now at this time of year, no.

Q. You never have? A. No.

Q. Do you do very much field work?

A. I do as much as I can.

Q. Did you ever visit the hatchery up there?

A. Yes, I have.

Q. Do you know how many salmon they catch at the hatchery each year?

A. No, I don't. I believe that the Fish Commission witnesses will be able to give you information on that point. [1082]

Q. You don't know that yourself though?

A. No.

Q. Down on the bottom of page 3 you refer to these fish being dependent upon an abundance pool of water. What temperature of water did you have in mind?

A. It should be under 50 if possible.

Q. Under 50? A. In that vicinity.

Q. And if the water is under 50, it would be agreeable to the continuance of salmon life in the area? A. Not necessarily.

Q. Well, would it have to be a different temperature then?

A. There are a number of water factors that

(Testimony of Charles Campbell.)

would have to be included. Quantity of water for one thing.

Q. Well, I mean as far as temperature was concerned. Assuming that there was sufficient quantity of water below the Pelton Dam and the temperatures were under 50, would that be agreeable to the salmon?

Mr. Bowles: I object to that question, Mr. Examiner, on the grounds that this witness is not qualified in any way to testify on the culture with respect to salmon. He came here to testify with respect to the steelhead and the trout situation and salmon is another matter that will be taken up by other witnesses.

Mr. Phillips: That is what I am trying to find out, whether or not he is qualified, because he certainly made some [1083] statements in here about salmon and one of them was the abundance of cool water, which apparently is a part of salmon and steelhead data, which has been supplied by this witness.

Mr. Bowles: Very well.

Presiding Examiner: He may not be able to substantiate the statement, but he has made it.

A. Well, we do know that salmon are able to live through the summer in pools in upper streams where there is an abundant supply of water. We also know that we have very good success in trying to hold spring chinook salmon and by we there, I mean fishermen in general and artificial ponds under any conditions.

(Testimony of Charles Campbell.)

Q. (By Mr. Phillips): I didn't ask you about that. All I asked you about was water temperatures, if there was an abundance of cool water under 50 degrees temperature would that be satisfactory as far as the quantity and temperature were concerned, for the fish?

A. As far as the temperature was concerned, yes. As to abundance, why I don't know what you mean by abundance.

Q. All right, if you were given the same amount of water that is in the stream that is there right now, would that be considered abundant or sufficient?

A. I believe that would be quite satisfactory, if the temperature was under 50.

Q. Did you ever take any water temperatures up there? A. No, I haven't. [1084]

Q. Now, down at the bottom of the page you speak about the duplication of the conditions artificially and they have never been successfully accomplished in a large scale with spring chinook and steelhead. How extensive has your investigation been as to whether or not it has been accomplished?

A. All I have—I have read considerable literature on the subject about—and talked with other fishery workers on the subject and I know that we have never had success partly because we have never attempted it on a large scale to raise summer steelhead as a result of the literature and talking further to people in our department, our department doesn't raise salmon to any large extent.

(Testimony of Charles Campbell.)

Q. Isn't it a fact, Mr. Campbell, that the hatchery on the Metolius which is recently built, recently operated and which they expect to expand is in itself an experiment and an attempt to rehabilitate the streams for salmon fishing or salmon culture?

A. The Metolius has produced salmon for many years. The hatchery there might be considered an experiment in trying to determine how much work can be done by hatcheries under that condition and because we know that we are going to do something as we lose more and more of the salmon producing areas in the Columbia Basin.

Q. Do you know how many years ago it was that there was any extensive salmon in the Deschutes above the Pelton Site? [1085]

A. Not from personal observation, of course, but members of our staff have seen many, many salmon up there along in 1920 or '23 which is comparatively recent.

Q. There were extersive salmon runs?

A. Yes.

Q. What happened to those runs in the meantime?

A. They have gone down hill to some extent, to a fairly good extent, obviously, probably from a number of causes.

Q. Dams weren't the cause of that, were they?

A. No, they weren't. They were subjected to the same trials and tribulations of Bonneville.

Q. You do admit that that they go over the Bonneville Dam, don't you? A. Yes.

(Testimony of Charles Campbell.)

Q. And it looks pretty good this year, doesn't it, the count that is? A. It does.

Q. You have also given an example in here, the Washington-Lewis River where the Ariel Dam was built and which you say resulted in a dwindling of the chinook down to 19 fish.

What was it in 1950?

A. Oh, one set of figures that I have I believe it shows about 200 fish.

Q. In other words, it is increasing again. What about the run this year. It has been pretty good again this year? [1086]

A. Well, Mr. Phillips, we talk about salmon and you can't understand that they are cyclic. The 1950 run wouldn't have any relation to the 1949 run. We have the 1950 figures——

Q. They had a pretty good run up there this year, didn't they?

A. Spring salmon haven't gotten there yet.

A. At the Ariel?

A. That is right. They just started.

Q. The spring run has gone through Bonneville, haven't they?

A. Yes. The Lewis fish don't go over the Bonneville and strangely enough that rate of spring salmon doesn't reach Ariel Dam as early as some of the fish get into the Deschutes.

Q. You mean it takes those salmon longer to go up the Lewis Ariel Dam, longer than it does to go up Bonneville and over the Bonneville Dam?

A. They start earlier.

(Testimony of Charles Campbell.)

Q. Oh, they have a different run?

A. Different races have different habits.

Q. When do they usually start on the spring run in the Lewis River Area?

A. The first of them should be getting there now.

Q. Up at Ariel? A. Yes.

Q. They have been having pretty good catches down in the [1087] lower Lewis, haven't they?

A. I don't have any figures on that. I know they were fishing down there and I believe they have probably been doing good.

Q. They are doing good fishing down there?

A. I don't know.

Q. You don't even know what you read in the paper?

A. I have been busy the last few days.

Q. What about the other varieties of fish up in the Lewis River, such as the silver salmon?

A. They are very much better. They fare very much better than the chinook.

Q. They have been improving up there right along?

A. It has been pretty much up and down. I don't think there have been as big a number as in the first two years of operation up there.

Q. In the middle of page 3 of your statement with respect to the Pelton re-regulating dam, you refer to the upper and lower riffle and two others where the gravel is extensively used by rainbow and the re-regulating dam would permit the same

(Testimony of Charles Campbell.)

amount of water coming down that area in the river, wouldn't it be a fact that similar gravel bars would develop in some places of the stream?

A. I don't know that I understand you.

Q. You say that you saw five major spawning gravel areas [1088] between the Pelton Site and the re-regulating dam. A. Yes.

Q. Wouldn't you think that those gravel bars would either stay there or readjust themselves to any stream changes such as gravel bars usually do?

A. Those will be subject to all the fluctuation in the—that will occur at the Pelton Dam itself, and between the re-regulating dam.

Q. Well, when you have a fluctuating of stream, isn't that what causes gravel beds?

A. To a certain extent, but these gravel beds in these fish—these gravel beds, first they will be under a number of field waters and then a few of them that will be entirely.

Q. They will be under water sometime, won't they? A. When there is eggs in them.

Q. For what length of time?

A. All I can say is some as long as 50 days, and then there will be another six weeks maybe before they come out of the gravel.

Q. The gravel bars, you know how they are built up and moved away in the stream, don't you and they do that naturally, don't they?

A. Some places, yes.

Q. You wouldn't expect them to do the same

(Testimony of Charles Campbell.)

thing in this stretch of river, wouldn't you? [1089]

A. I don't believe there will be satisfactory conditions, that is, between the two dams.

Q. On what do you base your assumptions, that the gravel bars wouldn't develop? You are talking about the areas between the two dams.

A. There will be too much fluctuation of the water. The bars will not be covered at all times or else they will be covered too deeply.

Q. How much fluctuation do you think there will be in there?

A. Well, the other day there were 23, I heard, I am not sure that is correct.

Q. Between the two dams?

A. That would be the re-regulating dam, I assume.

Q. There would only be 6 feet up above.

A. Yes, but you have the whole dam up above. You are trying to get me to talk about something that I definitely am not qualified to answer.

Q. You don't know that?

A. I assume that with the power dam you are going to get much more fluctuation than above.

Q. On the top of page 4 you spoke about the fact that Twin Lake is an excellent history of the effects of trash fish on a trout population. Where is South Twin Lake?

A. South Twin Lake is in the upper Deschutes Area, up near [1090] the reservoir. It is 35 miles south and west of Bend.

Q. It is a natural lake up there, isn't it?

(Testimony of Charles Campbell.)

A. Yes, it is.

Q. Where do the trash fish come from up there?

A. Fishermen, from the best of our knowledge they were brought in by fishermen.

Q. Did you ever find that lake when it didn't have trash fish in it? A. It doesn't have now.

Q. Well, they poison them out. A. Yes.

Q. I mean prior to the time they poisoned it, did you ever know of a time when it didn't have trash fish in it?

A. No. Our first survey found the trash. That is how we found them.

Q. You have trash fish in the whole length of the Deschutes River, don't you? A. No.

Q. What spots do you not have trash fish?

A. We do not have them above Crane Prairie.

Q. You have no trash fish above Crane Prairie?

A. Not to my knowledge.

Q. What about below Crane Prairie?

A. Yes.

Q. You have them in the stretch of the river, too, don't you? [1091] A. Yes.

Q. Isn't that what you said in here?

A. Yes, we have them in the stretch of the river, in the lower river.

Q. Increasing squaw fish, roach, suckers, chisel-mouth and other minnows in the Pelton region.

You have observed those?

A. Yes, fishermen in that vicinity.

Q. How long have they been there?

A. Oh, I wouldn't even try to say that.

(Testimony of Charles Campbell.)

Q. Before your time and before mine?

A. Well, probably before both of us.

Q. Mother Nature takes care of the balance on that type of fish, doesn't she?

A. Not after we set the icthyological conditions. No, icthyological conditions are upsetting the conditions very rapidly.

Q. Now down a little lower on page 4 where you say that your surveys show that angler expenditures for fishing, exclusive of the capital investment in equipment, were close to $2,000 per mile of the section studied.

What section was that?

A. That was in the area south of Bend.

Q. How far south?

A. The northern limits or two or three miles south. [1092]

Q. They were trout fishermen, were they?

A. Yes.

Q. Salmon fishermen? A. No.

Q. That area would not be flooded nor would the water temperature or the level of the water be changed at all at the Pelton Project, would it?

A. No.

Q. How many people were represented—how many people fishing did you find in that survey?

A. There were nearly 3,500 individual interviews with anglers.

Q. That is an approximate figure?

A. Yes.

(Testimony of Charles Campbell.)

Q. Over what period of time were those 3,500 people interviewed?

A. There were more than that. Those were the ones that were actually interviewed.

Q. Oh.

A. The entire report shows the calculation was about 3,400 fishermen approximately utilized the area in the course of the summer season, fisherman's season.

Q. That was over the entire fishing season from April until I take it October?

A. October 15, I think it was. [1093]

Q. You interviewed 3,500 and what did you ask the 3,500?

A. They were asked for the expenses that they accrued by reason of the fishing and we also asked them for money expended on fishing equipment. We had not figured out a satisfactory way of prorating it out and we couldn't get it.

Q. Do you know how many fish they took?

A. 10,500 and something, I believe. That is an approximate figure.

Q. Did the 2,000 per mile represent the expenditures by the 3,500 people interviewed or by the 8,400 estimated?

A. The figure of $2,000 was derived from the 3,500 interviewed.

Q. That would make about 200 dollars per person then roughly?

A. I am not sure of the calculation.

Q. Is that what you mean?

(Testimony of Charles Campbell.)

A. No, that wasn't the figure. All their expenditures were taken—Oh, I see what you mean now. To get the $2,000 the basic information obtained from the 3,500 interviewed and was applied to all the fishermen in the area.

Q. I see. You applied that. How did you work the ratios then? A. You mean obtain——

Q. To obtain 2,000 per mile.

A. There was an average figure worked out per fisherman, I [1094] believe it was and that was applied to get the cost per mile; we got the total and divided by the number of miles of stream.

Q. What kind of a total did you find?

A. Oh, it would be 32 times approximately 2,000.

Mr. Mason: What was that last answer?

The Witness: Approximately 64,000, 68,000, it would be 32, the number of miles, times the approximate figure of $2,000 per mile.

Q. (By Mr. Phillips): That is $64,000.

A. Yes.

Q. Total? A. Yes.

Q. Where did you get the total?

A. We obtained the basic figure from the interviews from 3,500 people—fishermen, applied that to the total calculated number of fishermen in the area for the season and that was the figure that was obtained.

Q. What I was curious to know, what was the total you got in your interviews there on the 3,500 people, what kind of total did you get from all those people on the expenditures?

(Testimony of Charles Campbell.)

Mr. Mason: Is that a total expense, or average per fisherman?

Mr. Phillips: That is what I am trying to find out.

A. Oh, I don't have that report right here. I could get [1095] it for you and would be glad to do so.

Q. (By Mr. Phillips): You don't know how they worked that? Did you work that yourself?

A. No, I didn't work it myself.

Q. Where did you get the 2,000 figure, where did you get that thing?

A. I took the total expenditure for the entire 32 mile area as we had determined it and divided the 32 to get the approximate figure for one mile.

Q. When does the fishing season open up there?

A. Opened April 28th this year.

Q. Did you take the figures for this year or some other season?

A. They were taken in 1950.

Q. When did the season open last year then?

A. It was approximately the same time.

Q. April?

A. Latter part of April, I would say and it goes to October 15th.

Q. Approximately six months?

A. That is right.

Q. About 180 days then?

A. Well, on a 32 mile stretch that would give you about an average of 40 people a day, is that about right? [1096]

(Testimony of Charles Campbell.)

Q. You don't know about how many fish they took?

A. I think I gave you that, an approximation of that figure of approximately 10,500.

Q. 10,550 fish for that season? That would be about $76 worth that each fisherman fished?

A. Figures out to $14.77 odd cents per pound.

Q. Of fish? A. Of fish.

Mr. Mason: Was that last $14.75 cents?

The Witness: Seventy odd cents.

Q. At the bottom of page 4, Mr. Campbell, you have stated that there are some undeveloped projects in other parts of the Columbia Basin where no serious fishery problem exists, presents an opportunity for continued hydroelectric development without destruction of another natural resource. Where are these spots?

A. Chief Joseph is one.

Q. That is being developed, isn't it?

A. Ox Canyon is under way. I don't mean that there are no problems, but these will not affect an average fish and most of those are problems of resident fish that are watched to some extent. Those on the Klamath River falls in that category.

Q. Klamath River going to help the power shortage out there?

A. I assume they are in the northwest power pool, I may [1097] be mistaken about that.

Q. No, they are not.

A. I am sure that they bring power into the Columbia. There is a lot of talk of energy.

(Testimony of Charles Campbell.)

Q. Are there any others in the northwest that you know of?

A. There are several in connection with the Willamette Valley Project, I believe, which will be above those that are being built.

Q. Are you familiar with those in the Willamette Valley?

A. I am familiar with some of them.

Q. Those have all been taken into consideration in connection with determining the power deficiency in this area, have they not? A. No.

Q. You don't know that?

A. Probably have.

Mr. Mason: In the interests of saving time, could I ask the witness one question.

Mr. Phillips: Yes.

Mr. Mason: Do you have any statement — you have in your statement several statements with respect to alternate power sites and power production and so on, I take it those statements are not made from your own knowledge, but you have accepted those from some other authority, some other engineer, some other person, did you not?

The Witness: That is correct.

Mr. Mason: You are not testifying on that personally, are you?

The Witness: No, sir.

Q. (By Mr. Phillips): Do you know of any other sites?

A. I have some that were set down last winter?

Q. What are they?

(Testimony of Charles Campbell.)

A. Oh, Cabinet Gorge is one of them.

Q. That is being developed, isn't it?

A. Yes. Palasades in Idaho, upper and lower Beaver in Idaho, Dunn Valley in Idaho, I haven't had personal experience with these or anything like that.

Q. None of them near Portland, are they?

A. No, well, the one from the Willamette.

Q. Detroit? A. Yes.

Q. That is being developed, isn't it?

A. Yes.

Q. They are hauling eggs around that dam, aren't they?

A. They expect to, but they didn't want to.

Q. Well, the State Fish Commission is handling that project isn't it? A. Yes, it is.

Q. Are there any other near Portland? [1099]

A. Hill's Creek will be on the upper Willamette.

Q. I was particularly inquiring about sites that were under development because they are already taken into the computation on power for deficiency.

Do you know of any that are not developed at all? A. No, I guess I do not.

Q. In page five of your statement you indicate that there are 250,000 persons buying licenses to participate in the Oregon sport fish harvest.

How many of those people fish on the Deschutes, do you know?

A. Oh, I know there are some ten thousand of them on one section of the upper Deschutes last year. As to the exact number on the Lower Des-

(Testimony of Charles Campbell.)

chutes we do not know. All you got to do is to drive through there and see them all over.

Q. You also noted that the hydroelectric project of the Pelton Dam is being relatively small in size. Do you consider that an insignificant project?

A. I don't consider it insignificant. I consider it relatively rather small.

Q. Don't you know it is larger than any of the plants presently owned by the Portland General Electric Company?

A. I have heard testimony to the effect, yes. It is relative small and is a relative term in relation to Grand Coulee. In relation to some guy with several kilowatts in his back yard [1100] it would be tremendous.

Q. I agree with you, but—let me ask you something about the attitude of your commission if you know. Would they prefer to have fish unmolested rather than see all the potential resources of this particular area and the country participate in the defense program in the United States at the present time?

Mr. Bowles: Mr. Examiner, he is asking for a statement of policy of a commission that this man is not competent to answer unless they have taken some action. The way the question is framed, I think it is objectionable. That is a statement with respect to policy, and this being part of the administrative staff has no authority to make an answer to that except insofar as the Commission has in and of itself taken action with respect to it.

(Testimony of Charles Campbell.)

Presiding Examiner: He may be qualified to answer it, but I think it is an argumentative question.

Mr. Phillips: It might be. If he is qualified I think I would like an answer.

Presiding Examiner: I will ask him if he desires to answer this sort of question which is argumentative in nature and doesn't establish anything as a fact. We are here attempting to establish a record of fact primarily.

Do you wish to express an opinion or statement of the Commission along the line that Mr. Phillips has suggested here?

A. I would like to have the question again.

(Question read.)

A. I would say that the Game Commission considers that this part of the National Resources of the State anyway there is never enough canned salmon, we want to see the development of the fishing on the river.

Q. (By Mr. Phillips): You think that would be more paramount than the development of the power for war materials?

A. You are probably referring to this particular project in question?

Q. That is right as part of the whole business.

A. The Commission is very plainly on record at this statement how they feel about this project.

Q. Only one other question. Did you ever put any counting stations on the Deschutes for fish?

A. No, I have not.

(Testimony of Charles Campbell.)

Mr. Phillips: That is all.

Mr. Mason: I have quite a few questions, Mr. Examiner, would it be imposing on your good nature to ask for a recess for about five minutes?

Presiding Examiner: One question I want to ask before we recess for my own information. Steelhead and rainbow trout are as I understand it the same fish, is that right?

The Witness: They are physiologically similar. By physiologically similar, I mean they are the same in physical structure. There is a difference because the rainbow doesn't go [1102] and the steelhead does.

It is physiological I guess. There is a difference.

Presiding Examiner: Thank you very much. We will have a recess for five minutes.

(Five minute recess taken.) [1103]

Presiding Examiner: Will you go ahead, Mr. Mason?

Mr. Mason: Yes, Mr. Examiner.

Q. (By Mr. Mason): Mr. Campbell, will you refer a minute to your Exhibits 30-A, B and C, which is your map; do you have that before you?

A. I do, yes.

Q. In the right hand corner you have a legend, there; do you find that? A. Yes.

Q. I notice the last thing on your legend—I guess that's a green solid line, is it not?

A. It represents a green color.

Q. Green color? A. Green solid line.

(Testimony of Charles Campbell.)

Q. And that's labeled "potential spawning areas"; now, over on the map proper on Cline Falls you seem to have used the same color, but you made an "X" along there; what does that "X" indicate?

A. The color should be referred to similar symbols in the red. I didn't make that clear. I mean "dashed" green means good spawning area; "dotted" green, fair; and green "X" is poor. The symbols are the same; the color reversed is potential.

Q. In other words, all of your red colors there refer to the existing areas; is that correct?

A. Yes. [1104]

Q. Now, everything in green in the same symbols would be potential? A. Yes.

Q. To be specific about it, where you've got your red "X's" that is called poor spawning areas there now; is that it? A. That's right.

Q. And where that same symbol, the "X's" as shown in your green, that is potential poor spawning area?

A. Yes; perhaps I better explain that a little further: it's there also, but for some reason fish do not have access to it now, and it is possible through physical improvements to make it accessible to migratory fishes.

Q. Then the potential spawning areas that you have indicated by the use of the green are really non-accessible areas at the present time?

A. That's correct.

(Testimony of Charles Campbell.)

Q. Referring specifically to 30-A, again, is the area between Steelhead Falls and Bend, which is indicated by your "X's" in green, which to me means not accessible, poor spawning area; is that correct? Am I interpreting your map correctly?

A. Yes, you are interpreting it correctly; there are a few short areas in there—two short areas that are fair, which is better than poor.

Q. I see those now; I overlooked those.

My next question is, do the irrigation diversions in the [1105] vicinity of Bend or upstream from Bend, have any effect on the section between Bend and Steelhead Falls, as far as spawning area is concerned? Is that a factor?

A. Yes, it's a factor, yes, sir.

Q. Now, down at Steelhead Falls, there seems to be a point of reclassification there; is there a block of steelhead spawning there at the present time?

A. They don't get over it to any great extent at all; I don't believe they get over it at all. It would be physically possible to make it so that they can.

That's the reason it's green above there, yes.

Q. Now, go on a minute to your statement that has been put in the record here, Mr. Campbell; the heading says it is a protest to granting a license, and so on, "protest by the Oregon State Game Commission"; I am having a little difficulty understanding whether this is a statement by the Commission itself, or whether you are responsible

(Testimony of Charles Campbell.)

for the facts, and so on, and opinions in this statement.

I am trying to find out where the Commission stops, and you start as a witness?

A. It is presented under the authority of the Game Commission; the Commission members themselves did not prepare it, no.

Q. You are authorized to present it here on their behalf?

A. Yes; it was prepared partly by myself, and partly by other of our staff members, both in Portland and the area in [1106] question.

Q. Though you are appearing here and taking responsibility for the factual part of this statement? A. That's correct.

Q. Will you look at the first part of this statement, please, sir; on page 1 there is a question on this, but I'm not sure the record is clear on it.

The statement says "the federal license was not granted." Is it your understanding that the Commission itself, the Federal Power Commission, itself, has ever considered this application?

A. I know it has been before them for some time; whether the Commission itself has actually read it, of course, I have no way of knowing. They sent out notifications to the effect that they had it.

Q. When you say a license was not granted, you do not have the understanding that it has ever been denied at any time; you are not trying to imply that at all?

(Testimony of Charles Campbell.)

A. No; I have no knowledge that it hasn't been denied; it's obvious to me. Otherwise, we wouldn't be having this hearing.

Q. The purpose of your statement, it would be just as accurate to say that the Federal Power Commission hasn't taken any action on it as a Commission, is that correct?

A. I believe so.

Q. So, down in the next paragraph there is a short sentence [1107] that says "this is a strong argument for the refusal of the federal license." Do you find that reference there? A. Yes.

Q. Is that your opinion?

A. Yes, that's my opinion.

Q. And the last paragraph on page 1, that says "migratory fish, when caught with hook and line, and the so-called non-migratory game fish are the responsibility of the Oregon Game Commission."

Could you define those fish a little better for us, as to what you had in mind?

A. When we speak of migratory fish we generally speak of the various salmons and the steelhead; those are classified in Oregon as food fishes under the jurisdiction of the Fish Commission, except when they are caught on hook and line; they then become a sports fish and are under jurisdiction of the Game Commission.

So-called non-migratory fish referred to, trout—they are frequently referred to as resident trout, which is somewhat misleading, because while they may not make migrations to and from salt water,

(Testimony of Charles Campbell.)

they do make migrations within the stream system in which they are found, frequently, on those streams.

Q. Now, the salmon, you said, that are caught on a hook and line, become the responsibility of the Game Commission; is [1108] that all runs or races or all species of salmon? Is that the way it's used; does it refer to all salmon?

A. Well, some of them don't take the hook and line very much; if they do, it's sport fishing, and so fishing for them should abide by our regulations. We regulate the sport take.

Q. What salmon do take hook and line?

A. Oh, the chinook and silver take hook and line readily; chums rarely do. The sea run, formerly bluebacks, readily do; what these pinks do in some places, I'm not very familiar with them; they are quite rare in Oregon.

Q. With respect to the Pelton Site and above, what salmon are caught with a hook and line up there, that are taken under jurisdiction of the Game Commission, or responsibility?

A. They would be spring chinook; there is not a great deal of sport fishing for salmon in that area because by the time they reach there, most salmon fishermen at least, in the western part of the country, no longer consider them fit for sport.

Now, that's not true on that everywhere on that, because some people like the old, scaly ones after they get up in the upper stream waters of Idaho.

But, with a few exceptions, they are not taken

(Testimony of Charles Campbell.)

that way in the Metolius; we've caught a few guys for taking them illegally up there.

Mr. Higgs: Mr. Mason, game fish are defined in this State [1109] by statute; would you like to have me read the definitions into the record?

Mr. Mason: I wanted to know what his understanding was; I would like to have the reference to the statute, if I may.

Mr. Higgs: I will give it to you, if you want to put in down.

Mr. Mason: Not the statute itself, just the reference.

Mr. Higgs: Game fish are defined in the statutes of Oregon in Chapter 11, Oregon Laws 1943, Section 11; Chapter 275, Oregon Laws 1941; and in addition to those contained in those just read, the last legislature defined lake trout, and I can't give you the chapter, but it's the amendment to Chapter 11, Laws of 1943, and the advance sheets are not yet out, at the present time; so, in addition to those listed, there will be lake trout.

Mr. Mason: Thank you very much, Mr. Higgs.

Q. (By Mr. Higgs): Over on page 2, Mr. Campbell, the first line, middle of the sentence, you say "these fish are dependent on spawning grounds, many of which are above the Pelton site."

Now, will you tell us where those spawning grounds are generally, and how much area there is both for steelhead and resident trout, anyway you want to relate that, any basis you used for making that statement?

(Testimony of Charles Campbell.)

A. Well, the map is largely self-explanatory on that; it has all been so indicated as spawning water; that it hasn't been [1110] surveyed is indicated by the solid red line; we don't know about that; we can't say.

The Metolius, of course, is spawning area; Squaw Creek is spawning area.

In my opinion, resident trout would spawn somewhere in pretty near every stream shown there.

Q. Has there been a sufficient survey by any of your people, or any of the Fish Commission people, to really determine how much spawning there is in the area above Pelton?

A. I won't speak for the Fish Commission people, but I will for us: no, there hasn't; we have not completed that work.

Q. You have already testified as to what Mr. Montgomery did in preparation of this map. Is that about all the information you have on which to base an estimate?

A. Some of this has been drawn from information that goes farther back than that. We have had biologists working in that area for quite a number of years; there's been a man there steady since 1947, I believe, and we have had other men in here at times before that, but not on this specific problem.

But, where they had observations or notes that were pertinent, they've been incorporated; in other words, they're all competent observers.

Q. I take it from what you told me, then, that

(Testimony of Charles Campbell.)

you don't have any quantitative data as to areas available for spawning expressed in any way other than just general? [1111]

A. That's correct; that's the same as we did for Mr. Phillips.

Q. Mr. Campbell, on page 2, again, the last sentence of the first paragraph, the sentence starts "it is considered to be one of the best steelhead streams in Oregon." Do you have that reference?

A. Yes.

Q. Did you have in mind there that it is one of the best for sport fishing, or for——

A. Yes, sport fishing is what I had in mind there, yes.

Q. But, it is not important so far as commercial fishery is concerned, is it?

A. No, that's hardly the implication. I was discussing that sentence particularly the sport fishing potential, which is our primary concern, and we do consider it one of the best.

It naturally would follow that it is important to the commercial fishery, too, for steelhead.

Q. Now, in the next paragraph, the second says, "both spring chinook and summer steelhead enter the rivers a considerable time before their sexual products mature and are deposited in the gravel of the stream bed."

Now, when does that happen with respect to the Pelton; do you have any particular location in mind?

A. I don't know as I understand you.

(Testimony of Charles Campbell.)

Q. I will make my position more specific: You say they [1112] are deposited in the gravel of the stream bed; now, where are those gravel beds above Pelton site that would be used by steelhead in spring?

A. The Metolius, of course, is one of the main ones; Squaw Creek is another; Crooked River is so utilized to some extent; and I believe that the main stem of the Deschutes would also be used some, on up above. [1113]

Q. (By Mr. Mason): When have you or where have you tried fish propagation on steelhead, Mr. Campbell, if any, summer steelhead? You may have answered that question before, but I am not sure.

A. Oh, I am afraid I can't give you a factual statement on that. We had something to do with them some years ago in the north Umpqua, but I think quite a few of those were just put over the rack that was their first salmon and allowed to spawn naturally.

Q. You don't know of any substantial effort that has been made, do you? A. No, I don't.

Q. At the bottom of page 2 you talk about the Lewis River and I am not going to refer to anything in particular, just so bring it to your mind, do you know whether the Lewis River and the Deschutes River are comparable in respect to spring flow water temperature? Are they comparable in your opinion?

A. No, I don't have temperatures and that sort

(Testimony of Charles Campbell)

of data to compare on them. They are somewhat comparable in size and physical conformation of the area which is about the same, the vegetative situation is considerably better.

Q. The general question, Mr. Campbell, on the Crooked River, I understand from Exhibit 30-A has not been surveyed for the purpose of spawning areas shown on this map?

A. Most of it has not. [1114]

Q. Is that river adversely affected insofar as spawning is concerned by your irrigation withdrawals?

A. The icthyological fish picture provision in the Crooked River is disturbed by the irrigation, yes. We still find steelhead well up into the system.

Q. Have you——

A. Steelhead are taken in Ochoco Creek and have been taken in Horse Heaven Creek, Beaver Creek, Shotgun Creek, I believe, and the lower part of the Crooked River and then I found downstream chinook salmon.

Q. Speaking of the re-regulating area, in your statement here you say the four miles of the re-regulating area is now supporting considerable angling. Would you be a little more specific as to what considerable angling means?

A. It isn't a scientific data, one reason it isn't referred to we have a report from a land owner in that vicinity that is saying it is overrun by fishermen, whatever that is worth. It is available, accessible and there are fish there and any place

(Testimony of Charles Campbell.)

things are that way here in this country, it is fished.

Q. In the next paragraph on page three, you say there five major spawning gravel areas in the stretch between the Pelton site and the re-regulating dam, then you go ahead and name them, could you give us any idea of the productivity of that area; relate to anywhere you want to, by number of fish or any other basis that you could use, if you know. [1115]

A. I wouldn't be able to tell you how many fish would be produced in any one of those rivers, no.

We catch fish in spawning condition or in spent condition, we leave them alone, each trout, each female trout would probably deposit between 700 and 1000 eggs in a nest.

Q. What I really meant was how many fish utilize the adult, how many fish do you use for that?

A. I would have to calculate a figure, I couldn't tell you off hand. I am sorry.

Q. You are familiar of course with the area to be submerged by the pond, the reservoir in back of the Pelton Dam, are you not?

A. Oh, I haven't seen all of it, but I am familiar with it, yes, I haven't been over every foot of it.

Q. Do you know whether there is any substantial fishing going on in that area now?

A. I would say there is quite a lot. There are plenty rolled up pant[illegible]s and cigarettes and pack-

(Testimony of Charles Campbell.)

ages and cigars and wrappers and dead light fish on the bank which indicates to me that it is very heavily fished in the area.

Q. People get in there on foot to fish or do they come in by boat, if you know? A. Boat.

Q. Boat?

A. They come by car within walking distance and they come [1117] down by boat too.

Q. Over on page 4 on the top of the page you speak of Lake Merwin being impoundment back of Ariel Dam on the Lewis River. Do you know what the maximum drawdown is at Lake Merwin?

A. No, I do not.

Q. Assuming that the Pelton Project is built and we get a big reservoir, I believe that you testified that there will be a lot of trash fish in that reservoir, is that substantially what you said?

A. In my opinion there would be within a period of a year.

Q. How would they get in there?

A. They are present in the river and in the drainage above it.

Q. In evaluating this system or this history in your statement here on page 4 you talk about the value of 2000 per mile of the section that you surveyed. Now, how many miles would be determentally affected by this project, assuming that it is built?

A. Speaking strictly of trout, so-called non-migratory trout, there would be between seven and eight miles with the pond itself would be approxi-

(Testimony of Charles Campbell.)

mately four miles between the impoundment and the re-regulating dam and there would be the affect that it would be very difficult to evaluate on the interruption on an interstream migration.

Q. What was the last part? [1117]

A. It would be—the distance would be very hard to determine that would be affected by the sessation of any interstream migration, local migration. I don't know how it would take affect on that point.

Q. Has there been any study made of the migration of fish in this river to determine over what area that might be affected? The question is have you made any study?

A. Not in that area, we haven't.

Q. This has been covered with some other examination, Mr. Campbell, but I would like to get a little more on it.

Would you describe the characteristics of the spawning area generally used by rainbow trout?

A. Oh, the smaller sizes of gravel, generally, because they are not as big and strong. It is my opinion that in river the fish would use rather small pockets of gravel such as you will find among the large boulders, in well aerated water of reasonable depth in the river. We find them spawning in shallow bits of gravel, most any place in the habitat, but I have also found fish in spawning condition in other—and other evidence, which leads me to believe that they mostly utilize places that most of us can't see or can't locate and then I

(Testimony of Charles Campbell.)

assume from that that they do utilize these small gravel pockets. Those are to be found in the downstream side of the dam.

Q. Do you have any idea of the range of depth, what the minimum would be and what the maximum might be? [1118]

A. I would think it would be on slope conditions and since I have never seen them actually in action or spawning in those places, I wouldn't be able to place limits. That would be valid limits, anyway.

Q. You spoke of the rainbow using small beds, could you give some idea of whether small gravel or almost sand or just what the relative size would be?

A. I would say pea gravel at the lower levels and depending on the size of the trout about up to walnuts and things like that. Or half again that big.

Q. With respect to the spawning areas of steelheads, could you give us the general characteristics of that, if there is any difference in the rainbow?

A. Well, they take a little more room and they move bigger rocks. The general requirements are the same otherwise.

Q. Could you briefly for the record, I don't think anyone has done so, at least in one place, describe the light—life circle of the steelhead? We have heard a lot of different phases of it, but we haven't got it all together as far as I know.

A. Well, the eggs are deposited in the gravel

(Testimony of Charles Campbell.)

as has been brought out, they remain in the gravel until they hatch and continue to remain there for a period of time generally until their milk upon which they are nourished during that period is pretty well absorbed and then they emerge and live in the stream generally similar to that for two years and start their seaward [1119] migration wind up at sea where they grow much more rapidly than they have heretofore and the majority will return as 4 year olds, some come in sooner and some come in later, and the adults return to generally the same stream, return to the spawning grounds and the steelheads will come in about July, August, and maybe as early as June and remain in the upper and cool portions of the streams until along in March, April and May when they generally ascend before they actually deposit the eggs. The adults do not then die necessarily as does the salmon.

If they get through all these trials and tribulations without getting too badly beaten up, and make it back to the sea before something gets to them, they will survive and will return again the next year or the year after that for another round of the same thing.

In other words, they are not through after one reproduction has been accomplished.

Q. Does anybody know how long or how many times one may come back to spawn? Do you know?

A. We have had them as many as three times,

(Testimony of Charles Campbell.)

I believe. Right off hand I can remember one case where we figures it went back three times.

Q. Does it take any time for the eggs to hatch? Is that variable?

A. It varies with the temperature.

Q. Is there a range? [1120]

A. Oh, it is the rule of the thumb, is 50 days at 50 degrees.

Q. 50 days at fifty degrees of temperature?

A. Yes.

Q. Colder water will slow that up, slow up the process and warmer will speed it up?

A. Yes.

Q. Can you give us the same information with respect to the rainbow trout?

A. They generally don't spawn until they are at least three years old, but that is an average, some longer than others, the same general rules on time—not rules, but general information on the time of incubation would apply. It varies with the temperature of the water.

The young trout hatch out and then if they are going to be rainbow they stay in the stream. Then they migrate up and they might migrate down. Generally they will migrate down to some extent. Right after they have lived in the stream for three years on the average, they also become rather mature and start the cycle all over again.

Q. Do you know whether the native trout, that is those that don't go to sea, eat salmon eggs and steelhead's eggs?

(Testimony of Charles Campbell.)

A. Oh, they will, when salmon or steelhead are spawning, that is only natural, the trout are very happy to receive them. If they weren't the salmon eggs would be so much in demand for [1121] bait.

As far as routing out a mess of eggs, there is the point that it doesn't happen enough to talk about and I don't believe that you will find salmon actually routing out a nest of the steelhead.

Q. Do the native trout eat the young of the —or the steelhead or salmon?

A. If they happen to be where they are available, they will. Any fish are cannibal. Salmon are cannibalistic to a certain extent.

Mr. Mason: That is all I have, Mr. Examiner.

Presiding Examiner: Mr. Witness, I am still confused about the steelhead and the rainbow. You gave a different story on the cycle of the rainbow than you did for the steelhead.

Somehow I have gotten the idea that they are the same fish. Can you straighten me out on that a little bit?

The Witness: Well, I will try. There are rainbow in many places that never go to sea, that never become steelheads. I am convinced of that because there are places where it is not possible that they could. If they did, they would never get back. Such places are the Deschutes above Wickiup or still above that, even above Crane Prairie. Other streams where rainbow are found and there are falls, they are inaccessible. Trout that are raised in hatcheries, a lot of them don't go to sea.

(Testimony of Charles Campbell.)

Presiding Examiner: When a fisherman catches a steelhead, [1122] he doesn't know whether he is catching a rainbow or a steelhead?

The Witness: In migratory form, he does not.

Mr. Mason: Could I ask a question, Mr. Examiner?

Q. (By Mr. Mason): This is still on the same subject, Mr. Campbell, is it possible if you know for a trout, a rainbow, to spawn and lay a lot of eggs and those fish hatch out and from that litter, if you want to call it that, some go to sea and are steelheads and some stay in the stream and are rainbow? A. It is possible, yes.

Presiding Examiner: Do you have any further questions?

Mr. Higgs: No.

I think at this time I would like to re-offer Exhibit No. 30-A to C inclusive; also the 1949-1950 Biannual Report of the Oregon State Game Commission. I have forgotten the number of it.

Presiding Examiner: Number 29.

They both have been offered and I have deferred ruling on them until after cross examination.

I will hear objections to those exhibits now, if there are any.

Mr. Mason: No objections.

Mr. Bowles: No objections.

Mr. Phillips: We have no objections.

Presiding Examiner: Without objection the Exhibit Numbers 29 and 30-A, 30-B and 30-C will be received in evidence.

(The above documents referred to were received in evidence [1123] as Exhibit Nos. 29, 30-A, 30-B and 30-C.) [1124]

* * * * *

DONALD JOHNSON

was called as a witness, and having been first duly sworn, was examined and testified as follows:

Direct Examination

Q. (By Mr. Higgs): What is your name, please? A. Donald Johnson.

Q. And where do you reside?

A. Near Portland.

Q. What is your business or occupation?

A. I am an aquatic biologist for the Oregon Fish Commission. [1125]

Q. How long have you held that position?

A. I have been with the Oregon Fish Commission since March of 1946.

Q. Did you hold any other position with the Oregon Game or the Oregon Fish Commission prior to that time?

A. No; I have with the International Pacific Salmon Fisheries Commission, which is concerned with the sockeye salmon in the Frazer River, largely in British Columbia.

For your interest, that is between '39 to '42, inclusive.

Q. What education or college degrees do you have, and what are they?

(Testimony of Donald Johnson.)

A. I have a Bachelor of Science Degree from Oregon State College; I spent four years there, graduating in 1939.

Q. In what course?

A. In Fisheries and Game Management.

Subsequently, I spent a major part of three years at the University of Washington in the School of Fisheries, doing graduate work, following which I have taken the equivalent of a little less than two years of civil engineering.

That about rounds out my education.

Q. Now, Mr. Johnson, have you prepared, in conjunction with Mr. Donald L. McKernan, of the Oregon Fish Commission, a written statement concerning the attitude of the Oregon Fish Commission concerning the present application?

A. Mr. McKernan and I prepared various features of this [1126] for convenience; we thought it best to put them together and they have been, and are submitted in that fashion.

Q. Now, there are a few questions in addition to those in that written statement——

Presiding Examiner: Just a moment. I wonder if, at this time—I know it is going to be asked—if you could go through there and identify the parts that counsel will be able to ask you about, as distinguished from the other witness?

The Witness: In a general sort of way, I would be very happy to.

They are intermingled a little bit, but I believe I can, for the most part.

(Testimony of Donald Johnson.)

Presiding Examiner: There are tabulations that you prepared, and other things of that sort?

The Witness: The manner of the estimates of the size of the runs we've run jointly, but I certainly have been concerned with them.

Mr. Phillips: Just a moment; could we get those pages as we go along?

The Witness: I'll do my best, yes.

Let's say that about—and I want to infer and make clear that this is not the complete and clear cut separation—about pages 1 through 15.

Q. (By Mr. Higgs): That is yours? [1127]

A. Yes.

Mr. Mason: In other words, you are responsible for the first 15?

The Witness: Primarily, right; and Mr. McKernan will be responsible for the rest of them; I am sure he will agree; and we are certainly both responsible for features of both.

Presiding Examiner: That is very helpful; I think it will help the attorneys, so they won't be giving you questions—that could be answered more readily by your associate.

Now, you have some other questions, Mr. Higgs?

Mr. Higgs: Yes.

Q. (By Mr. Higgs): Mr. Johnson, your responsibilities with the Oregon Fish Commission and problems arising from them——

A. I have been, in connection with the Commission, directly concerned with the proposed and actual construction of a number of dams: those on

(Testimony of Donald Johnson.)

the Willamette system that affect anadromous fish, McNary Dam, for example, on the main stem of the Columbia River, some 200 miles above Portland; and still others, that might not occur to me off hand.

Q. I see.

A. Certainly, this Pelton Dam has been one of those under consideration.

Mr. Higgs: I think it has been established here, Mr. Examiner, that under the law of Oregon there is a statute requiring the consent of the Oregon Fish Commission for the [1128] construction of dams in rivers containing salmon. That has been established here, has it not?

Presiding Examiner: I believe so.

Q. (By Mr. Higgs): Mr. Johnson, in connection with your duties and responsibilities with the Oregon Fish Commission, are you familiar with the Deschutes River and its tributaries?

A. I am through much the same fashion that Mr. Campbell was, through a work of my staff—I should point out something I overlooked, and that is, it has been my primary concern until rather recently to direct the Columbia River research reviewing of the Fish Commission, which certainly has quite a bit to do with power.

And, in conjunction with that, we have staff members who make certain necessary surveys, and so forth; it has been my duty to direct them. I have actually been on the Deschutes in a number of places; I do not pretend to know every foot and rock of the Deschutes River, either.

(Testimony of Donald Johnson.)

Q. Well, are you familiar with the proposed Pelton project?

A. Yes, I've seen—I have not been at the site, but I've sent my men there; and have also seen, so far as I know, all of the plans; they have been submitted a number of different prints, and so forth, to us and I have looked at them.

Q. Now, Mr. Johnson, have you and your staff estimated [1129] the size of the salmon and steelhead runs passing the Pelton Dam site?

A. We have.

Q. If so, what are they?

A. We estimate that the runs passing the Pelton Dam site——

Mr. Phillips: Just a moment. I would like to register an objection. If they haven't made any counting, I certainly object to estimates.

Q. (By Mr. Higgs): Have you made any actual count of the salmon and the steelhead passing the dam site?

A. No; I was just going to interject a thought, that perhaps it's none of my business here, but I believe I am under the impression that the power to be derived is an estimate.

Mr. Phillips: No; it's a computation, an engineering computation.

The Witness: This has some logical basis, and I will be glad to go into it.

Presiding Examiner: This witness can estimate; he is apparently a trained fish biologist, dealing with this matter in his daily work. His estimates

(Testimony of Donald Johnson.)

may not have weight, for argument's sake; you will be allowed to argue that.

Mr. Phillips: I would like to let my objection remain, irrespective of what ruling you make at this time, and I may [1130] want to renew it.

Mr. Mason: I would like to suggest, Mr. Examiner; I am sure the witness has some foundation for an estimate; maybe it would be helpful if he could give us the basis of that estimate before he gives it.

Mr. Phillips: He could qualify himself for his estimate, first.

Mr. Mason: I am interested in this because I think it is a very important question.

The Witness: I am sure you would be, naturally.

There a number of things that I think should be clearly understood, in relation to estimating fish population.

In the first place, you do not see but a small proportion of the fish present when you look over an area in which they are.

For example, in 1946, I, with a member of the Game Commission's staff, was interested in this particular matter; it is of considerable interest to us outside of this immediate problem; and we had a condition where we had counted over a certain dam all of the upstream migrating spring chinook.

We then looked over the area in which the fish were and we found—by the way, the river is smaller than the Deschutes; I don't recall the flow of it,

(Testimony of Donald Johnson.)

it's the North Puyallup; I guess at that time of the year the flow is in the neighborhood of—I'm just guessing—maybe around 500-second-feet. [1121]

We looked over the whole stretch of river and found slightly less than 15 per cent of the fish were above there. I believe observations of that sort, and I will be glad to discuss some others, and I propose to do so now, are of considerable merit in determining how, within what range of how reasonable are the estimates we have made.

Then, we have stream surveys—they are intensive ones. I might say, because on the Willamette system—and they were extensive, for the very obvious reason that there were very extensive hydroelectric and flood control developments of the Willamette system—and they have been under way now for five consecutive years, '46 to '50, inclusive, and the average proportion of fish seen, relative to those in the river, is determined by counts over Willamette Falls—that's near Oregon City, some 15 miles above Portland, here—the percentage of fish seen on these surveys was 7.7 per cent of those passing over Willamette Falls.

Again, the proportion of fish seen was very much lower, of course, than the number that are known to have entered the system.

The number of fish reaching our racks; we have racks, which I presume the term is self-explanatory to you for intercepting some of the upstream migrating salmon, in order that their spawn may be taken and they may be produced in hatcheries.

(Testimony of Donald Johnson.)

These are placed reasonably well up on the tributaries of the Willamette [1132] River in four different stations on the four major tributaries having salmon in the Willamette system.

The percentage of fish, relative to the number that went over the Falls that reached our racks, was 10.6 per cent in the period '46 to '50, inclusive.

If the counts in the normal surveys, plus the number actually handled at the racks be added together, which may or may not be pertinent, the number is obviously increased, and the percentage then becomes around 18 per cent.

Presiding Examiner: I believe there was a pending question before this statement?

Mr. Higgs: Yes. I asked him if he had made an estimation of the number of steelhead and salmon passing the dam site. He started to say that he had, and then there was an objection interposed.

The Witness: We estin.. 'e the number of spring chinook salmon passing Pelton site as about 2500 fish, and that the number of steelhead passing Pelton site is in the neighborhood of 5,000 fish.

Presiding Examiner: Annually?

The Witness: Annually.

I might interject one point, there, and that is that these surveys relative to the number of fish there, regardless of the racks, have not been undertaken through an entire cycle, and one of the various years in the cycle are independent, one of another, [1133] so I am in full agreement that it is somewhat ridiculous of me to state the annual

(Testimony of Donald Johnson.)

run when we haven't gone through a whole cycle, but based on a knowledge that we have been able to gather in the last 2 seasons, plus fragmentary material prior to that, we have made these estimates.

Q. (By Mr. Higgs): Have you or the members of your staff tagged salmon in the Columbia River?

A. Yes, we have.

Q. Now——

A. We've tagged—roughly, again, now, from memory—between 20 and 30 thousand adult salmon, all told; partially from the fall run, but in that general magnitude.

Q. Where do you usually tag salmon in the river?

A. In the river we've tagged them near the mouth; some 20 miles above the mouth; at Bonneville Dam; and at Celilo Falls.

Q. And what is the purpose of tagging salmon?

A. There are several: one would be to determine where the fish in question are headed for at the particular time they are going through when we are tagging them; there are a number of others—and the relative fishing intensity at various periods; and some others that aren't nearly so pertinent to this, that I don't think I need go into.

Q. Did you also mark salmon?

A. Yes. [1134]

Q. And what method do you use?

A. Your marking, in our normal terminology,

(Testimony of Donald Johnson.)

is differentiated from tagging in that marking is done on young fish; they are too small to bear a tag; and that is done by excising certain—usually 2 fins, and certain combinations of fins, to determine the source mark.

Q. Have you performed the marking, as distinguished from tagging, at the Bonneville Dam?

A. You say have we—we initiated some, and there have been very extensive markings above and below the dam on the part of the Oregon Fish Commission, and later, during the war, by the Fish and Wildlife Service.

Q. Yes. Do you know about—I've forgotten the exact term—they marked them on one side of the fish above the Falls, and on the opposite side of the

A. Yes, in a general way. The actual, formal part of that has not been published; certain material relative to it has been.

For example, the purpose of it, of course, was to plant fish above and below Bonneville Dam, for instance, so they would both pass on to the sea, but to be close enough together, however, that the only intervening factor affecting one and not the other, would be the dam itself, and the actual passage of the fish. [1135]

It was found in the course of those studies that the mortality, and then they were checked upon their return and the various percentages calculated, and the mortality rate was about 15 per cent of the small fish going down over the dam.

(Testimony of Donald Johnson.)

Q. That's not to show the number of fish going up, is it?

A. At the moment, it has nothing to do with the fish going up.

Q. That's the young fish? A. Yes.

Q. Do you have any information or any findings relative to tagging, now, as to the time of migration of Metolius chinook through the Columbia River?

A. Yes.

Q. And what is the significance of it?

A. It's limited. Let me tell you this, first it's limited because of lack of, well, our own personnel, during certain times of the spring, in tagging; however, we have found that fish tagged on June 21st, 22nd, and July 1st—I believe I have the record some place around here—have, in 1948—in that case one tag of each day's tagging went to the Metolius.

I might say, since we know from the Indian fishery at Shirar's Fall that there are fish in the Metolius—or, in the Deschutes, I mean—considerable earlier than that, it follows that we were not necessarily tagging the major part of [1136] the run and the peak, either, for that matter. We know that the fish were already being caught in the Shirar Falls area, some 100 miles, roughly, going on the Deschutes above at the time of tagging; so that we certainly had fish there at the time we were operating.

Q. Do you from your studies, now, and any facts or information that you have, in your official position, do you have an opinion as to whether or not

(Testimony of Donald Johnson.)

the proposed Pelton dam will affect anadromous fish passing above the dam site?

A. Let me state further—here is one thing I might mention regarding the tagging that is perhaps of some significance, and that is the—this tagging has been a means for identifying the various runs when they are down in the main Columbia River by time; in fact, by this time of the year, certain runs should be in. And it is a tool, then, by which we can protect certain runs.

And, I might say that the season for commercial fishing on the main Columbia River have been altered partly to accomplish the protection of spring chinook runs, such as these going on the Metolius; the season is closed right now; this is the 18th; it opens roughly a week from now.

The Deschutes run is definitely, and has been, in the Columbia River, and in the fish area, for a number of days, or a few weeks.

You asked a question; would you mind repeating it? [1137]

Q. Yes. I asked you if you had an opinion as to whether or not the construction of the Pelton dam would affect anadromous fish passing above the proposed dam site? A. I do.

Q. And what is that opinion?

A. I think that no matter what measures are taken in the way of artificial propagation with our present knowledge, that we are going to lose production from that area and to the Columbia River, if the Pelton dam is built.

(Testimony of Donald Johnson.)

Q. Will you state the reasons on which you base that answer? A. Yes.

Q. Is that covered in your statement, there?

A. Not specifically, in quite that fashion; it might be good to review briefly.

The temperatures are in excess of that ideal for salmon spawning and reproduction.

There will be problems on fish being held below the re-regulating dam, for example; in the first place, the fish tend to want to go up where they came from, and they will tend to fight objects that stop them.

For that reason, injury and subsequent fungus and disease can be expected to be a severe problem. Past experience in the same type of problem does not lead to any optimism that I can see, in a project of this sort. [1138]

In the Leavenworth project, in the Columbia River, where it was necessary to transfer major runs—in that case they trucked the adults—they had severe losses, and in some cases close to a hundred per cent mortality in fish in which they were dealing.

The hauling problem, as the eggs were taken at the dam site and up to the hatchery, and the fingerlings back down, all of those things multiply the problem of maintaining the fish runs, to such a point that I think there is every reason to believe it is not possible at the present time.

I might also say that the life histories of the steelhead and chinook are such that there are strong in-

(Testimony of Donald Johnson.)

dications that it is absolutely necessary to rear them to advanced age in order to get out a return. This quirk in their life history and the necessity of rearing them then adds to the problem in the hatchery. There are more problems in fish disease, naturally, the longer the fish are held.

I believe, in the present, those are my reasons why we think the Pelton project will adversely affect the fish.

Q. How about the height of the dam; does that have any adverse——

A. Yes, the dam is 150 in height, and there is no known fishway, to my knowledge, that passes runs of fish successfully over dams of that height and insures a successful passage of the downstream migrants coming back. [1139]

Q. What is the highest dam, to your knowledge, in the Northwest, where fish have gotten over dams by fish ladders or mechanical devices?

A. I understand there are substantial runs, in what may be assumed the minimum delay—and by the way, there is a delay at Bonneville Dam, which is 62 feet in height—there are other dams having fishways that are not particularly effective.

For example, the Portland General Electric Company's river mill dam on the Clackamas River has a fishway—which was, of course, built a number of years ago—which is, by present standards, entirely inadequate.

I believe it would be easy to quote others, but suffice it to say that the Bonneville Dam is the highest

(Testimony of Donald Johnson.)

that I know of that passes fish with any success.

Q. I see.

I think you testified already as to the water temperature as one reason?

A. I did mention it.

Mr. Higgs: I think that's all, Mr. Examiner, as to questions in addition to the written statement.

* * * * * [1140]

DONALD L. McKERNAN

was called as a witness, and having been first duly sworn, was examined and testified as follows:

Direct Examination

The Witness: I graduated from the University of Washington in 1940 with a B.S. in fisheries and entered the graduate school of advanced study in fisheries in 1940 and continued during 1941 and 1942. I returned to the University in 1948 and 1949 to complete the academic requirements for the degree of Doctor of Philosophy in Fisheries. From 1938 through 1941 I worked for the Bureau of Fisheries and Fish and Wildlife Service on various phases of the Grand Coulee Fish Salvage Program on the Upper Columbia River on a part-time basis during the summers and also during the school year. During this period I also spent four full months studying the problems involved in passing young salmon downstream past two dams on the Wenatchee River (Tumwater and Dryden Dams) and the screening problem at the dams and diversions in

(Testimony of Donald L. McKernan.)

eastern Washington. A report of this investigation was made to the Washington Department of Fisheries.

After 1941 and while still attending the University of Washington, I accepted a position as fisheries biologist with [1146] the Washington State Department of Fisheries and in this capacity during the next four years intermittently carried on many phases of study of salmon biology, including some studies of the ocean fishery, studies of the fresh-water life of the salmon, both the young salmon as well as the adults, and some special work on hatchery management of salmon.

In October 1945, I assumed the position of Director of Research for the Fish Commission of Oregon. In this position I have carried out, planned, and directed extensive research projects dealing with salmon conservation and managmeent. Our department has and is conducting large scale studies on all phases of the biology and management of the salmon populations of the Columbia River and other Oregon rivers. As an example this past summer we employed in research 25 men to study salmon problems alone. All of these men were either full time members of our scientific staff or were students of fisheries from various universities. We employ 12 trained fisheries scientists full time who study the various phases of problems dealing with salmon conservation from hatchery management to ocean troll studies. One of our most extensive programs is the cooperative study with the State of Washing-

(Testimony of Donald L. McKernan.)

ton fisheries biologists includes fisheries of the Columbia River and its tributaries, which of course, includes the Deschutes River. For the past five years our staff, including myself, has expended a great deal of effort toward studying the effects of dams on the salmon runs of the Columbia River. We [1147] have studies specifically the problems of upstream migration at Bonneville and McNary Dam as well as the smaller dams on the Willamette River and other rivers of the Northwest. We have also studied the passage of young salmon back down over the dams.

I, as well as other members of our staff, together with the members of the Washington Department of Fisheries, U. S. Fish and Wildlife Service, and Army Engineers have planned the facilities for fisheries at McNary Dam and the dams on the Willamette River in Oregon.

We, (speaking of my staff as well as myself) have written reports and given expert testimony before Congressional Committees and other national boards both here and at important hearings in the Northwest concerning the problems of fish passage and fish salvage on proposed Columbia River Dams. We, again speaking of members of my staff and myself, have recently published a report of the factors influencing the abundance of salmon in Northwest Rivers. Our experiments and studies relating to the problems encountered in the passage of fish going over barriers are too numerous to mention fully. I have authored several articles dealing

(Testimony of Donald L. McKernan.)

with salmon biology in general and one dealing specifically with the causes of decline of the salmon runs in Oregon. I have been a fisheries advisor for the Oregon member of the Columbia Basin Inter-Agency Committee on over-all river development plans on the Columbia River. [1148]

The Department of the Army requested my services last summer in Japan. Among other duties of studies of fresh-water fisheries management programs, I reported and made recommendations to the Department of the Army on the anadromous and catadromous fish problems at dams in various parts of Japan. I visited some 20 to 30 river development projects in this study and on the basis of this survey made certain recommendations concerning river development projects and their impact on fisheries resources.

I was a member of the Natural Resources Section of SCAP Water Policy Committee while in Japan and assisted in drawing up a policy for the orderly development of the water resources of Japan.

During the past three months I have been a full time faculty member of the University of Washington School of Fisheries, teaching graduate courses in fisheries biology.

Presiding Examiner: Mr. Higgs, do you have further questions on direct?

Mr. Higgs: Yes, we do have some in addition to the general written statement.

Presiding Examiner: Very well, proceed.

The Witness: Excuse me, Mr. Costello, Mr.

(Testimony of Donald L. McKernan.)

Johnson and I discussed the portions of this report that we would testify on and there was one section in the pages that Mr. Johnson and I both thought best if I testified on and that is the section on Fish Propagation on page 11 primarily on page 11.

As Mr. Johnson mentioned, there is an area of overlap in our [1149] work and to some extent where we are both qualified to discuss and be examined on much of the report, but certain fields are more in line with my work and I more specifically have written those up for the purposes of this hearing.

Artificial propagation is one of which I am more familiar than perhaps Mr. Johnson. That was agreeable to him as well as myself.

Presiding Examiner: I think that will be helpful.

Mr. Mason: I am not sure that I understood all that. You are taking the responsibility for Exhibit 31 on artificial propagation beginning on page 11?

The Witness: Yes, sir.

Presiding Examiner: We might be able to eliminate some duplication of questions and answers on the two witnesses here if it is possible to inquire of the witness whether if he were asked the same question would his opinion also be the same as the statement given by the other witness. We may be able to cut down a little bit by that method.

Will you proceed, Mr. Higgs.

Mr. Mason: Could I ask Mr. McKernan one other question on that line. I notice on page 12 he

(Testimony of Donald L. McKernan.)

has another subject, "Transference of Runs". Are you responsible for that also as part of the artificial propagation?

The Witness: I think that is one of those sections which under the overlap we are both qually well answer the questions. [1150]

Mr. Mason: Thank you very much.

Q. (By Mr. Higgs): Will you state your full name for the record?

A. Donald L. McKernan.

Q. What is your occupation?

A. I am fisheries biologist and at the present time am employed as the Director of the Research for the Oregon Fish Commission.

Q. What is the nature of your duties?

A. I direct the research program of the Oregon Fish Commission and assist in designing the program of study for this commission. In addition I also do a considerable amount of field work and biological studies on my own.

Q. Do your duties include problems arising under the jurisdiction of the Oregon Fish Commission with respect to the granting of permits for construction of hydroelectrical dams on the streams of Oregon?

A. Yes, with Mr. Johnson, the two of us, usually represent the Oregon Fish Commission in meetings involving water development and river development programs. We both are on an unofficial committee, you might say, that deal with planning that Federal Government have on the Colum-

(Testimony of Donald L. McKernan.)

bia and we both are involved to a considerable extent with planning fish facilities and fish salvage methods at the private installations within the jurisdiction of the Fish Commission of Oregon. [1151]

Q. Are you familiar with the present application FPC 2030, Pelton Dam Site?

A. Yes. I am generally familiar with the project and with the application.

Q. Have you examined the plans for the proposed project?

A. Yes, in a general way I have.

Q. You understand the general nature of what they propose to construct and particularly with respect to the facilities, fish facilities in connection with the dam? A. Yes, I do.

Q. Are you familiar with the Deschutes River and its tributaries?

A. Yes, I am. Again, I am more familiar with the parts of the Deschutes than I am with others.

For example, I am quite familiar with the Upper Deschutes which we generally consider to be the major salmon producing area, that is the five to ten miles from the source of the Deschutes downstream to the Canyon. I am entirely familiar with that area.

Q. Are you familiar with the Pelton Dam Site itself?

A. No, I am not. Only from the reports of my staff members.

Q. I think you stated that you are familiar with the proposal to construct a fish hatchery and hold-

(Testimony of Donald L. McKernan.)

ing ponds and other fish facilities if the dam is constructed, is that correct? [1152]

A. Yes, I was more or less in charge of drawing up the facilities that were required by law, as I understand it, for our Commission to draw up at the request of the private company.

Q. You mean by private company the applicant in this case?

A. The applicant in this particular case requested our department to suggest facilities for the salvage and fish runs on the Deschutes River and I was in charge of drawing these suggested facilities for this project.

Q. What experience have you had in your official capacity in the planning, the constructing and the cost of operation of fish hatcheries?

A. I have had very little experience in actual construction of fish hatcheries and in the design.

Q. How about operation of fish hatcheries?

A. In planning and in operating the fish hatcheries I have had some experience with the planning of the fish facilities. I was a party to the plans of the fish hatcheries and fish facilities on the Willamette project and was one of the authors of the State of Oregon proposals for the fish facilities which were involved in the Willamette Valley Project. That involved as I offhand recall, four salmon hatcheries and perhaps two or three trap hatcheries.

The Game Commission cooperated in drawing up the plans, the general plans for those particular facilities. In this case, [1153] in the case of Pelton

(Testimony of Donald L. McKernan.)

plans I drew heavily upon the advice of our own hatchery division and our hatchery superintendent, Mr. Ervin French, and in addition consulted at considerable length with the staff members of the Fish and Wildlife Service who were most familiar with these particular phases of fishery.

Q. I don't want to interfere with your line of thought now.

Mr. Higgs: Mr. Examiner, and Counsel, I don't know whether it is clear in this record exactly the distinction between or the differentiation between the duties of the Game Commission and the duties of the Fish Commission. Do you think that is pretty well understood in the record?

In other words, the fish commission has jurisdiction under Oregon law of commercial fisheries, where the game commission has jurisdiction over the game fishers and that is correct.

Presiding Examiner: That has been clear to me all along.

Mr. Higgs: Has it been clear to the staff and everybody?

Mr. Mason: Yes.

Mr. Higgs: Very well.

Q. You made an estimate of the cost of the hatchery operations required to salvage runs of fish passing beyond the Pelton Dam Site?

A. Yes, we made a preliminary estimate of the costs of these facilities. The first estimates that we made and were for a capital outlay investment of

(Testimony of Donald L. McKernan.)

about $750,000 and an annual operating [1154] expense of about $295,000 to $300,000 estimate.

The figure that is perhaps most open to question is the figure for the annual operating expense. These vary so tremendously pending upon the type of species of the salmon involved, the type of species of the fish involved in the area in which the work is done and the various conditions under which the hatchery is operated that it is difficult to draw a parallel with other cases.

What I did do and the method that I used, was to compute the general cost of hatcheries on the basis of the pounds of food used and my first estimate gave me about $295,000 calculating that we would or were going to rear in the neighborhood of 340,000 pounds of fingerling each year.

Later and only recently I took some figures furnished by the Fish and Wildlife Service, these are summary of production and operating costs of the Wildlife Service Hatcheries in Washington, Oregon and California and Idaho in the past four years, 1945 to 1949 and in these records, I took all of the hatcheries where spring chinook as compared with fall chinook and other species and races of fish, I took all of the Federal Hatcheries which dealt with the species that we would be dealing with, races that we would be dealing with on the Metolius and I calculated the cost per pound—I made a slight error, I didn't calculate, they had calculated it and I simply used their calculations.

I calculated the cost per pound of fish produced

(Testimony of Donald L. McKernan.)

and upon [1155] consultation with the Fish and Wildlife officials I found that these cost figures didn't include some things that are normally considered costs, like the upkeep of the grounds and the depreciation on the buildings and upkeep of the equipment and things like that. This considered only the cost of producing the fish and the fish hatchery and things of that kind and I found that the average cost in these three stations where spring chinook and blueback were reared was $1.35 per pound and that is for the last five years of available records.

Applying the 320,000—excuse me, 340,000 pounds which we would expect to produce of fingerlings from the Metolius Hatchery, this would amount to a sum of about $459,000 annually that will be necessary for the operations of the Metolius Hatchery. That is my basis for considering that and you will note in my discussion in Mr. Johnson's and my discussion, we used the figure then of somewhere between $300,000 and $500,000 annual operating expense at the Metolius Hatchery.

Now the applicants here have offered an annual operating expense of $100,000, which based on the best information that I have is far too low. This will be a very expensive hatchery, a very expensive hatchery to operate as can be noticed from the cost of producing fish. [1156]

I would like to add that previous testimony has pointed out that the fisheries—it was pointed out

(Testimony of Donald L. McKernan.)

that there were 26 such hatcheries, there were 26 numbers in our annual bulletin.

That is not the case. The last biennial, I believe, we had been operating 15 hatcheries, and these 15 hatcheries are primarily on species that are much, much easier and more economical to rear than spring chinook.

And, furthermore, most of our hatcheries are not the modern, new modern hatcheries; and the expenses, as we bring those hatcheries up to date, are increasing very rapidly with our department, as our department's monthly figures would show; and I believe that these Fish and Wildlife figures are most apt to be correct and are closest to the cost, the true cost of production, than any figures that are available, including our own.

Q. Now, do you have an opinion as to whether or not the proposed hatchery as planned can successfully salvage salmon runs and runs of migratory fish involved?

Now, that calls for a yes or no answer.

A. Yes, I do have an opinion.

Q. Will you state your opinion?

A. I believe that it is highly problematical as to whether this hatchery will be succesful or not. Nowhere, yet, have we successfully maintained by hatchery means alone, large populations of fish, and more particularly, nowhere yet have we maintained large runs of spring chinook salmon which are far more [1157] difficult to rear successfully than any other race or species of salmon; and therefore, I

(Testimony of Donald L. McKernan.)

think it highly improbable that we will be able to maintain large runs of salmon of the spring chinook race, and probably the summer steelhead, in the Metolius watershed.

Q. Isn't it the modern trend of those in authority, those that have the duty of regulating fisheries, that fish hatcheries are not now the answer for rehabilitation of salmon runs?

A. Yes; that's true.

The policy of the Oregon Fish Commission is to use hatcheries as a supplement, and unless we are forced to, we do not like to use hatcheries to maintain entire runs of salmon. We run hatcheries in an entirely different sense, and in a very important and significantly different sense: that is, we use hatcheries to supplement propagation, to replant fish below the falls—do you know about that?

new ladders, or ladders put over natural falls or dams, which previously were wood ladders.

In instances where there have been no natural runs of salmon or those runs of salmon have been previously eliminated or badly decimated, and that's our primary use of hatcheries here in the State of Oregon at the present time, according to the policy just laid down by our Commission.

Q. And, scientific studies now disclose that hatcheries do not take the place of natural spawning grounds; is that correct? [1158]

A. That is correct.

The returns from our experiments and experimentation show that recoveries which can be ex-

(Testimony of Donald L. McKernan.)

pected from hatchery-reared salmon of all species are quite low, but from spring chinook are particularly low.

Now, I do not mean to imply that science will be unable to solve this particular enigma, and it is my belief that through research, within a relatively short period of time we can successfully and economically rear salmon so that they will survive in significant numbers at sea to make artificial propagation compete with natural propagation.

But, to date, I am certain that there are few, if any, competent fisheries authorities who look upon hatcheries as the answer to salmon maintenance; natural propagation is essential, we all believe.

Q. Is that with reference just to salmon or other anadromous fish, or would that apply to fish hatcheries generally?

A. Well, I would prefer to confine my remarks to anadromous fish hatcheries, and that would be salmon and steelhead.

Q. Yes. Has there been any competition on the estimate of the size of the runs and their value, fish runs, salmon runs? A. Yes.

Q. And, did you assist in that computation?

A. Yes, I did.

Q. Will you give us the results, please? [1159]

A. Yes. This is a time, now, when I must make an embarrassing, relatively minor change, however, luckily, in Exhibit No. 31, page 17: the last paragraph, 4th line up from the bottom, the value for the steelhead, instead of being $100,000, should read

(Testimony of Donald L. McKernan.)

$70,500—from Table 1, of course, as it says in the brief.

Q. Where is that, now, please?

A. On page 17, 4th line up from the bottom, steelhead; the clause reads: "The steelhead, close to $100,000 (Table 1)."

That should be, "steelhead, close to $70,500 (Table 1)."

And, on the next page, the 8th line down should read—my second arithmetic wasn't any better than my first—684,000, rather than $641,250.

Q. What was that, six thousand what?

A. $684,000, rather than $641,250; I'm sorry, but our brief was written in somewhat of a hurry——

Mr. Mason: I wonder if we could have those changes made physically in all the copies of No. 31?

Presiding Examiner: I think that could be done during one of our recesses.

The Witness: I would be pleased to do so, if it pleases the Chairman.

And, in answer to your question, on the basis of the estimates of the salmon involved that Mr. Johnson has pointed out, and furthermore based on some values that fairly recently have [1160] been derived by our department in cooperation with the Fish and Wildlife Service and the State of Washington Department of Fisheries, I use certain values which are given in Table 1, page 18.

These values were values per pound of fish, the first wholesale value; and furthermore, based on ratios of catch to escapement, which are published

(Testimony of Donald L. McKernan.)

in Willis H. Rich's 1938 publication, The Salmon Runs of the Columbia River in 1938.

Q. Who is Willis H. Rich?

A. Dr. Willis H. Rich was formerly Director of Research for the Oregon Fish Commission; he has been professor of fishery biology at Stanford University for far more years than I have been alive, I believe, and has only recently retired from that position.

Dr. Rich, in 1938, and based on statistical tabulations, estimated that the ratio of catch to escapement for spring chinook was somewhere around 4½ to 1, I believe, something like that; and summer steelhead about 2.2 to 1; and we used the best available statistics that we had on these particular figures, arriving at the number caught of 12,500.

Now, we are in the process of recalculating these figures at the present time, but our biological data does not permit us to be precise in this matter, so we have used Dr. Rich's published estimates of catch to escapement.

Then, we based our pounds caught on the fact that the fish [1161] averaged, the spring chinook averaged about 15 pounds per fish and summer steelhead average about 10 pounds per fish, from data gathered by our staff, to arrive at the present annual value of $177,000, roughly—a $177,000 annual value at the present time.

Then, on the basis of prognosticating in the future, we have estimated that these runs could produce as much as a million dollars annual, and they

(Testimony of Donald L. McKernan.)

may be required, or we may require the Deschutes River, under the stress of the Columbia River development program, to try and produce more than this if the upper river runs, or other parts of runs have to be transferred to lower river areas.

So, that, the potentials of the Deschutes, so far as the programming for the survival and maintenance of the Columbia River runs, is tremendous. We may have to attempt to transfer large parts of upriver runs to the Deschutes River system, if the Columbia River program develops as the federal plans now under consideration, if they go through.

Q. Do you have an opinion as to whether the area above the Pelton dam site, as to how many fish the area above the Pelton dam site is capable producing?

It calls for yes or no.

A. Yes.

Q. Will you state your opinion?

A. My opinion is really based on some opinions of Mr. [1162] Johnson and myself, and if you will remember, the section of the estimating of the numbers of fish was going to be covered by Mr. Johnson.

Rather than take any additional time on that, why, I might pass it over to him, if it would please the Examiner.

Presiding Examiner: I think that would be very well, since you are better prepared on other parts of the report.

The Witness: All right.

Mr. Higgs: Don't think I'm not listening be-

(Testimony of Donald L. McKernan.)

cause I'm back here, because I'm just like a school teacher; I can listen with my back turned.

Go right ahead—or, did you finish?

The Witness: Yes.

Mr. Higgs: I wasn't listening, then.

Q. (Mr. Higgs): Are you familiar with the Detroit Dam, on the north Santiam? A. Yes.

Q. And in your official capacity were you concerned with fish problems, of any arising there?

A. Yes, I was concerned with the fish problems at the Detroit Dam on the North Santiam River, a tributary of the Willamette River.

That posed a very serious problem for fisheries people, because the Detroit Dam lost a large portion of the North [1163] Santiam run, a very important run of the Willamette River.

As I recall, the river system handles about 20 per cent of the Willamette River fish, and the Willamette River runs are in recent years, have been in the neighborhood of between 40 and 50 thousand spring chinooks, so this particular river system is very important to the maintenance of the Willamette River runs and the problems involved at Detroit Dam are very serious.

Our Commission opposed the construction of Detroit Dam when it was proposed, because we felt it would be very difficult to maintain runs, but after it was authorized and construction began, then, of course, we pooled our efforts and did everything possible to design a program which would allow for the maintenance of the North Santiam Run.

(Testimony of Donald L. McKernan.)

What we finally evolved was a hatchery up above the Detroit Dam site, and we will take the adult fish down below the dam and hold the eggs until they're eyed, and take them to the hatchery and put them in the hatchery, and haul the young fish back down again; now, there are a great many problems involved in this particular operation, and from the standpoint of the Fish Commission, it's entirely an experiment and one that we're crossing our fingers on because of the difficulty involved in handling major segments of the run.

This is quite different from the Metolius problem, however, because major segments of the North Santiam run spawn below the dam site and also enter the Little North Santiam River, so [1164] that we are not handling the entire run into the North Santiam, like we are in the Metolius region.

Therefore, if we should fail, we will not wipe out an entire spring chinook run.

Q. Are you able to make a comparison between the problems which you have described on the North Santiam, with the problems that you think you will encounter at the Pelton dam site?

A. Well, the problems in some respects are similar, but in many respects they are different. We aren't toying with the entire Santiam run; in the Metolius river we are involved in the entire run if the Pelton dam does go in, and we have never maintained to the public nor to the engineers that we were confident that the North Santiam run, which formerly inhabited the upper areas of the

(Testimony of Donald L. McKernan.)

river, could be maintained even with these hatchery operations; but, it is true that this particular operation is more like our normal operations; that is, where we are dealing with only a portion of the run of salmon rather than the entire population inhabiting a river system.

Q. Then, the North Santiam has not as yet proved itself successful?

A. No, absolutely not.

This year we liberated our first fingerling, yearling fingerling, from the North Santiam, and we won't know for four more years; that is, these young chinook fish were last year's fish, the chinook being a 5-year fish—that is, it completes its [1165] life cycle in 5 years—and so, it will be 4 more years before we know what preliminary successes we've had.

The biggest question mark in the North Santiam has not arisen yet, because we've held the fish in their normal area of the river, the normal cold water area of the upper river; the fish haven't been blocked, haven't been completely obstructed by the Detroit Dam as yet, and when they are blocked, then it means that we'll be obliged to hold these spring chinook below the Detroit Dam for several months during the year.

And, it is during that particular critical period that we are very fearful that we will lose excessive numbers, or all, possible, of the fish being held; the water temperature is warm; they are too warm, really, to successfully hold fish, and that is par-

(Testimony of Donald L. McKernan.)

ticularly true during their construction stages. That is, there will be no impoundment and there will be no stratification of the waters; there will be stratification of the Detroit reservoir, whereas I do not believe there will be stratification of the Pelton reservoir.

And the Detroit reservoir will stratify, and after it is constructed of course, then we can get cold water into our holding areas and into our egg taking areas, from lower depths of the impoundment, but during construction stages, of course, we won't be able to because there is no pool behind the Detroit Dam at the present time; during that period of construction and raising of the pool, why, we're going to have 2 or 3 possibly [1166] very critical years, in which we may lose very important segments of that run.

Q. Why do you think there will not be any stratification at the pool at the Pelton dam?

A. Well, because the amount of water impounded is so very small, that compared to the amount of water used, if my figures are correct and I appreciate the fact that I may be wrong—I believe there is about 25,000 acre-feet in the Pelton pool, and that they will use around 8,000 every 24 hours.

If that's the case, then the entire water in the Pelton will be theoretically evacuated in 3 days. That is not conducive to stratification or the formation of layers in an impoundment.

And, to back up that statement, I might mention

(Testimony of Donald L. McKernan.)

that the Bonneville pool is a good example; so far as we know, there is no stratification to speak of in the Bonneville pool.

Q. Why?

A. Because it's a run of the river plant, and there is no great impoundment of water in Bonneville; it will be a good deal the same as the Pelton situation in that regard; or, in some respects it will be the same.

The Pelton pool will be a fluctuating pool, fluctuating as I understand it, 6' feet each 24 hours; but, the Bonneville pool fluctuates around a half degree during the summer time from top to bottom, something in that general magnitude, according to figures provided me by the Fish and Wildlife Service, who [1167] studied this impoundment.

And, I don't believe that the additional height of the Pelton Dam will make any difference in the stratification; I just don't believe it will.

Q. Now, Mr. McKernan, are you familiar with the lower Columbia River Program?

A. Yes, I am.

Q. And are you able to state what part, if any, the Deschutes River plays in that program?

A. The Deschutes River is extremely important from the standpoint of the lower river program, second in importance to the Cowlitz River, because in the first place it is one of the few river systems which are not, to a tremendous extent, at least, the Metolius and Warm Springs part of the Deschutes, are not so adversely affected by man-made obstacles to salmon propagation and maintaining.

(Testimony of Donald L. McKernan.)

Furthermore, the Deschutes is in what we consider the mid-Columbia River, and if, for example, The Dalles dam should go in, and John Day dam, the Priest Rapids, and the four lower Snake River dams and Hell's Canyon dam, in addition to McNary, if all those dams should go in, then very likely we would be required to try and transfer or do something with these upper Columbia River runs, at some place along the Columbia River.

Now, the question is, what could we possibly do with something like half a million adult fish, something like—if my [1168] memory serves me correctly—around 2½ billions of eggs, salmon eggs, which would be involved.

Well, we would have to do something with those fish, and it's a cinch that they would not, at least—the life history of the salmon is such that I am thoroughly convinced that they would not be able to spawn in any of the pools, and it would be a series of pools up the Columbia.

Then, we'd have to find a tributary; now, the only tributaries left available with any potentiality, or the major tributaries; not the only ones but the ones with regard to spring chinook, anyway, are the Cowlitz and the Deschutes, and the Deschutes is, of course, in relatively close proximity to this upper area.

So, the Deschutes would be a most important adjunct to this serious salvage program, and we would have to use all the potentialities of the Deschutes it could possibly produce if we were to sal-

(Testimony of Donald L. McKernan.)

vage these tremendous runs of salmon going into the upper Columbia River.

And, frankly, myself and members of our staff think that this eventuality is most urgent and is very likely, that the Deschutes will be needed to a tremendous extent if we are event to attempt to maintain the upper Columbia River runs if the present federal program of river development is implemented.

Q. Has the Oregon Fish Commission taken any action under the Lower Columbia River Program in attempting to establish a [1169] fish sanctuary, particularly below the McNary Dam?

A. Yes, we did attempt to have the major river systems below McNary set aside as a fish sanctuary, and we have quite a few of them set aside in that way.

We were not successful in our legislature in having the Deschutes set aside, but we did try with all the facilities at our command, and we consider the Deschutes a most important tributary to remain free for salmon propagation and for future development of the Columbia River potential.

Q. Now, you are familiar with the tagging program of salmon in the ocean and in the Columbia River?

A. Yes, I am very familiar with it; I have planned, and my staff has executed, a large portion of this particular program.

Q. Now, what is the likelihood of recapture of an ocean tagged salmon in the Metolius?

(Testimony of Donald L. McKernan.)

A. Well, I think the likelihood, the probability, the mathematical probability is very small, for this reason: that in the ocean we tag relatively small numbers of fish, and the State of Oregon has, in the past 3 years, yet to tag a thousand chinook.

These runs of fish from which these less than a thousand were tagged, are made up from fish from all the tributaries along the Pacific Coast, and of course, the Columbia River and its tributaries formed a very significant part of these ocean [1170] populations which are being tagged, but even so, a definite portion are going to other tributaries and upon entrance into the Columbia River, of course, there are large runs throughout the Columbia River drainage.

And, again, the tags are deluded by the fact that in the ocean they not only come from hundreds of river systems along the Pacific Coast, in addition to the Columbia; but, in the Columbia itself there are literally hundreds of river systems where these fish could come from, and at the present time the Deschutes River system itself probably only is in the general magnitude of a few per cent of the Columbia River fish; that is, probably less than 5 per cent of the Columbia River salmon at the present time.

We considered the future potential of the Cowlitz River maybe as big as 20 per cent of the entire Columbia River runs; those are some figures that we have dealt with, Mr. Johnson and I, but we do know at the present time that the Deschutes and

(Testimony of Donald L. McKernan.)

Metolius River runs are a small percentage of the Columbia River runs.

Therefore, these fish are so diluted, the tagged fish are so diluted by the time they get into the Columbia that it is unlikely that tagged fish would go up the Columbia; that is, you would have to sample large numbers of fish before you would expect a tag.

Then, when they get in to Deschutes itself, we only examine [1171] a small proportion of the fish that even enter the Metolius River, and the tags are thus further diluted and the mathematical probability of our finding a tag in the Deschutes, even though the Deschutes River fish are contributing significantly to the ocean catch as well as to the river catch, is very small.

Understand, of course, we have recovered fish tagged in the Columbia River and the Deschutes, but there, of course, a great portion of our dilution is reduced and we have only the Columbia River runs to deal with and our tagging has been more extensive than in the ocean.

Q. You are familiar with hatchery operations in the Columbia River?

A. I beg your pardon?

Q. You are familiar, I believe—you already stated that. A. Yes.

Q. Are you able to make a comparison as to the hatchery operations on the Deschutes with the hatchery operations on the Columbia?

A. Yes; the probability of success on the Des-

(Testimony of Donald L. McKernan.)

chutes of any operations on spring chinook in the Deschutes, are much less than in the majority of hatcheries on the Columbia, because of the very simple fact that we are dealing with spring chinook salmon in the Metolius River, and in the majority of hatcheries on the Columbia River the major species involved is the fall chinook. [1172]

And, it is well known from tagging experiments and published records that the recoveries from fall chinooks are far greater; that is, the survival of fall chinooks from hatcheries are much greater than they have been from spring chinook.

The truth is that marking experiments on spring chinook up to the present time has shown very, very, very low survival rates from hatcheries.

Q. Why is that, if you know?

A. It appears as though the fish are less able to be reared artificially than other species of fish and survive to become adults.

That, undoubtedly, is one of the factors involved.

Q. Something inherent in the difference of the species?

A. Something inherent in the species itself.

Now, for example, in the field of artificial propagation, where more knowledge has been gained, it is well known, for example, that brook stock rainbow that have been raised and selected for hatchery brood stock for generation upon generation, the survival from the hatcheries is very, very great; and the survival after they are planted is relatively large.

(Testimony of Donald L. McKernan.)

But, there, again, take a wild steelhead which is the same species, but a different race, again, why, sometimes the survival in hatcheries and the survival after planting is many, many times less.

That is, the one stock of fish has been subjected to hatchery [1173] treatment and hatchery selection, natural selection from hatcheries for many generations; and therefore, the ones that have survived and propagated are well able to stand the many viscissitudes of hatchery environment, whereas the wild, natural ones, are not so inclined and are not able to survive to the same extent.

I think that particular problem is involved in maintaining spring chinook runs, because we do know that they are much more difficult—the problems are much greater than with either silver salmon, blueback, or fall chinook salmon.

Q. Have you or members of your staff taken any temperature readings in the Deschutes?

A. Yes; yes, we have taken——

Q. That's water temperature I'm talking about.

A. Yes, we have taken a few intermittent readings, and the Fish and Wildlife Service has had a recording thermometer at the mouth of the Deschutes for a period of time.

I have examined those records.

Q. Well, now, based upon those and your own information, do you have an opinion as to what might be the water temperature of the Pelton dam site where the dam is constructed.

Mr. Phillips: Mr. Examiner, I will have to ob-

(Testimony of Donald L. McKernan.)

ject to that question. Now, if he knows the water temperatures, what they are, and got them from actual sources, I don't mind him giving them, but I certainly don't think we should permit this witness [1174] to give his opinion on what the water temperature is.

Mr. Higgs: Now, if the Examiner please, I think the good doctor who testified for the applicant in this case was permitted to give water temperatures, and he had never taken a thermometer out there but he had swum or swam, whichever is correct, in that water; and I think that—I didn't object to it; I think it was objectionable, but I let it go in—and here are some temperature readings, which, I think are a lot closer.

Mr. Phillips: Well, he did have some record readings and he gave them in his testimony.

Mr. Higgs: That he had made?

Mr. Phillips: No, that he had from official records.

Mr. Higgs: I don't believe that's the case. On cross examination I recall distinctly I asked him about that, and he said, "Well, I swam in it a number of times, and I guess you can tell whether the water is cold or not by swimming in it."

And, I recall he said, "Remember when you were a boy, about the water being warm up here, and all of a sudden it was cold down yonder"; of course, he was way over my head with that doctor's degree, but nevertheless, he didn't take any temperature readings out there, and this gentleman has.

(Testimony of Donald L. McKernan.)

That's my argument.

Mr. Phillips: Well, if he wants to testify as to what temperatures he has taken and give us those temperatures, I have [1175] no objection, but you asked him for his opinion of it.

Mr. Higgs: Well, the Doctor gave an opinion.

Mr. Phillips: No, he didn't.

Presiding Examiner: I think this witness can certainly give the information from the records he has.

Mr. Phillips: All right.

Presiding Examiner: There is no question about that; now as to his opinion as to what the temperatures may be after the dam is built, we haven't gotten to that bridge yet.

Mr. Phillips: No, that question wasn't directed there; this was directed to him as to what his opinion of water temperatures was.

The Witness: I can only give you my opinion.

Presiding Examiner: I think the question, misframed that way, misled us all. But, will you continue now with the data you have on actual temperatures?

The Witness: We have a few intermittent temperatures taken by thermometer by members of our staff. For example, I will, of course, give only the maximum temperatures because lower temperatures have no particular bearing in holding spring chinook. I do not want to mislead anybody in that regard.

We recorded a temperature of 63 degrees at Shirar's Falls, which is about 30 or 40 miles, if

(Testimony of Donald L. McKernan.)

my judgment is correct, below the Pelton site on July 14th—on the date of July 14th.

We took a temperature reading of 62 degrees Fahrenheit in [1176] the main Deschutes at Shitike Creek, which is only a few miles, a very few miles —less than 10 miles, I believe, below the Pelton site, at 4 p.m., on August 4, 1950.

Now, these temperatures are not particularly the maximum temperature obtained during the year; these are intermittent temperature readings taken by our staff when they happen to be at that particular site.

The Fish and Wildlife Service recording thermometer which of course are better records, because they are there all the time, and these records, as most of you are familiar, are recorded on circular discs of paper, and they have recorded at the mouth of the Deschutes River, temperatures during the summer time as high as 73 degrees Fahrenheit.

Those temperatures, all of those that I have listed, are above the tolerances of adult spring chinook of this particular race; this particular race of spring chinook comes into the Deschutes River and migrates rapidly through the lower Deschutes in the earlier part of the year—that is, in June and early July—and it gets into water temperatures and holes during the summer, in water of temperatures of around 45 degrees, from 45 to 47 degrees, along in there, which is, of course, many

(Testimony of Donald L. McKernan.)

degrees lower than those found in the main Deschutes in the area of the Pelton dam site.

Q. Now, do you have an opinion as to what the temperature of the water would be after construction of the Pelton Dam? [1177]

A. Yes, I think that the——

Mr. Phillips: Pardon me, just a minute. I object to that.

Presiding Examiner: All the question called for was yes or no.

Mr. Phillips: I don't think the witness is qualified yet.

The Witness: Yes, I have an opinion.

Q. (By Mr. Higgs): Will you state your opinion?

Mr. Phillips: I object to that on the ground it's incompetent, irrelevant and immaterial; and the witness is not qualified to give an opinion on what the water temperatures will be after construction of the dam.

Presiding Examiner: I don't think that his qualifications have been shown on that aspect; it may very well be that he has the qualifications, by comparison with other dams or knowledge that he has of other dams, but I believe you will have to bring that out.

Q. (By Mr. Higgs): All right, have you made any temperature readings at other dams?

A. Yes.

Q. You or your staff, of course.

A. Yes; both myself and my staff have made

(Testimony of Donald L. McKernan.)

temperature readings, and it is most necessarily a part of our duties to consider what temperatures are going to occur at these particular [1178] dams. For example——

Q. Now, in what rivers?

A. In the Willamette River system; and I made temperature readings on the Bear Creek reservoir myself, a very small and insignificant study, a small dam, which is the city water supply for Astoria, and I have examined all the literature available, some of it quite recent, on temperature studies on impoundments because it is very necessarily a part of our duties to decide whether we can use water supplies from dams and impoundments for fish facilities.

For example, in the Detroit situation we had to decide whether these large sums of money would be expended below the Detroit Dam in trapping fish and holding them there; and also, we have had the particular situation arise that at the Lookout Point Dam in the middle Willamette, and will arise at the Green Peter Dam on the south Santiam, and almost everywhere where dams are being constructed we must consider temperatures that our salmon will come in contact with below that dam, and if we use the dam for hatchery water supplies.

It has been one of my particular duties as we searched the record to consider those particular data, all the data available.

Presiding Examiner: Does your objection persist?

(Testimony of Donald L. McKernan.)

Mr. Phillips: My objection still persists because he hasn't told us of any dams that he has taken temperatures in of [1179] a comparable height of the Deschutes, and he has told us about some little ones on the Willamette: Beaver, Bear Creek reservoir, that's down by Astoria.

The Witness: There are no dams in this vicinity of the exact height of Pelton Dam.

Mr. Phillips: As high or higher.

The Witness: There are very few of that height; Ariel Dam, for example, I have not taken water temperatures in Ariel Dam, but I am very familiar with the temperature records, and I have with me temperatures of the Ariel Dam by Richard T. Smith.

Mr. Phillips: Well, the witness isn't qualified yet; we nad some questions of Dr. Hodge about that matter in regard to fish, and Mr. Mason said he wasn't an expert because he had only read a book on it.

Mr. Higgs: Yes, but he was permitted to give an estimate of the temperatures out there because he had swam the river.

Presiding Examiner: I think the qualifications of this witness, or the lack of them, if there be such, can be shown on cross examination.

I think he has shown enough familiarity with the temperatures of impoundments to permit his giving an opinion on that subject now.

Q. (By Mr. Higgs): Now, you may state your

(Testimony of Donald L. McKernan.)

opinion—and if you ever swam in that river, say so. [1180]

A. It would be my opinion—and it's quite a simple one—because I don't believe there will be stratification in the Pelton Dam, I do not see why the temperatures will be any less than they are at the present time.

I also think there is a possibility of them being slightly higher, but I'm not certain about that particular point and I wouldn't want to be too positive of it; but, I can see no reason, no logical reason on the basis of any evidence that has been supplied me, why the temperatures wouldn't be as warm as they are at the present time, particularly in view of the fact of the small size of the impoundment and the relatively large amount of water which is being used daily from this relatively small body of water.

Mr. Mason: May I interrupt and ask one question there?

Were you talking about temperature below the re-regulating dam, Mr. McKernan?

The Witness: I was talking about temperatures below the Pelton site, or temperatures, for example, which might be used out of the Pelton site for the holding of adult salmon, Mr. Mason.

Mr. Mason: Thank you very much.

The Witness: Yes.

Mr. Higgs: You may cross examine.

Mr. Phillips: May I interrupt a moment to

(Testimony of Donald L. McKernan.)

inquire; did you have another witness coming from out of the state today? [1181]

Mr. Higgs: Yes, sir.

Mr. Phillips: I am quite agreeable to letting that other witness go on.

Mr. Higgs: Well, if we can have just a short recess.

The Witness: I'm not sure that he's here.

Presiding Examiner: I don't see Mr. Riddell in the room, here.

Mr. Higgs: Is Mr. Riddell here?

(No response.)

Presiding Examiner: Do you desire a recess at this time?

Mr. Higgs: No, not particularly.

Presiding Examiner: Let's go ahead, then. Mr. Bowles?

Cross Examination

Q. (By Mr. Bowles): Mr. McKernan, in your studies of these fish, and particularly the spring chinook, and I take it that your statement as to races of fish indicate that there will be one race of fish in one river and one race in another, in speaking of it that way; now, there is a difference between the spring chinook salmon that run into the Lewis River to those that may run into the Deschutes and the Cowlitz.

Do those different races of fish respond differently with respect to temperatures; are some of their tolerances different in that respect? [1182]

(Testimony of Donald L. McKernan.)

A. Yes, certainly, Mr. Bowles. Each separate race of salmon responds to its own environment; and, of course, that's what one might expect, because these stocks of fish have been selected out, after all, generation after generation, and those which will most successfully survive in their particular environment are the ones that are most apt to survive and propagate the race in future generations.

Q. Now, let's take a situation where a trapping operation supposedly transplants a complete race of fish from one river system to another; do the upstream migrants from that resource that will come back, after the period of their propagation and growth, are they more likely to be sensitive in the same manner to the temperature changes as their parents would have been? A. Yes.

Q. In other words, if your temperature was increased, they would not be in a position to maintain themselves against that increase in temperature?

A. Yes; I have some published data to support that particular contention here with me, if it would help the record to substantiate my thinking along those lines.

Presiding Examiner: Mr. Bowles hasn't asked for substantiation, so we can pass on, unless he wants that particular thing.

On cross examination, if you could confine your answers as much as you can, as a scientist, to the precise question, it might help us a little bit here to shorten it up. [1183]

(Testimony of Donald L. McKernan.)

Mr. Mason: I am not sure that I got the answer. I mean I got the answer but I am not sure whether he said they were sensitive or whether they were not.

The way the question was asked I am not sure of the answer. Did you understand the answer, Mr. Examiner?

Presiding Examiner: I got the answer very clearly, but if you want to have the answer read back?

Mr. Mason: I don't want it read back, I just want to be sure that the record is clear.

Q. (By Mr. Bowles): You brought up some similarity that existed between the proposed operation at the Pelton Site with that which is to be operated on the or is being operated on the North Santiam. Now, are there any significant differences with respect to the temperature problems between that operation and the one that you estimate will be in operation at Pelton?

A. We are quite certain that at the North Santiam site we will have favorable temperatures as soon as the dam is constructed because this is a tremendously large homily and almost certainly the dam setify and even though we are very skeptical about the ultimate results on the North Santiam operations we do feel that the temperatures below the dam, after it is constructed and impoundment has been formed it will—the temperature will be cold.

Q. One other question along that situation. You

(Testimony of Donald L. McKernan.)

the [1184] principal spawning areas of the North Santiam lie in the system itself or in the main North Santiam or are they in the tributaries?

A. The main spawning area is in the North Santiam and are in the main river up above the impoundment and also in two or three major tributaries. The Brighten Bush and the Marian Fork down below the impoundment, they are in the main river and in the little North Fork, a major tributary entering the—below the Detroit Dam from Miles.

Q. You don't have a similar situation above the dam, spawning in the streams above the tributaries to the main stem, itself? A. No.

Q. Like you have in the Deschutes River?

A. No.

Q. Have you people made any studies with respect to the productive capacity of the stream and its limits and whether it is more limited by the food that is produced in the stream system, or the spawning area available to the fish that entered the system to spawn?

A. That is a very important question and one that could be discussed for a considerable length of time, but I think I should answer that very briefly and say that we are engaged in such studies at the present time.

Q. Have they revealed anything that would lend value to this? [1185]

A. I don't think so, farther than the fact that the size spawning run does not always necessarily

(Testimony of Donald L. McKernan.)

indicate size of the resultant run in the ocean and that is one and there are other factors involved which are changes of temperature of the water and changes of food conditions and that causes fluctuations of the survival of the young fish.

Q. Now you made some statement with respect to studies that you and Mr. Johnson have made with respect to hatchery operations generally throughout the states of Washington, Idaho, Oregon and California and your own operations in Oregon of the hatcheries operated by the Fish Commission.

Are your hatcheries here that you operate, is that operation based upon the best available knowledge that is gleaned for or from all the other operations that you have available data on?

A. Yes, we are attempting to base our hatchery operations on the best possible available methods. We are in the process of improving our hatcheries very substantially at the present time and I would say that some of our practices some of the time are possibly not according to the best scientific methods, but they are rapidly becoming so.

Q. Do you operate any upstream hauling operations at the present time? Are you hauling upstream migrants to pools or holding ponds?

A. No. [1186]

Q. You stated that some apparent differences existed between the spring and the fall runs of the chinook salmon. Can you tell us if there is any difference as to the length of time that each of

(Testimony of Donald L. McKernan.)

those salmon finned in the fresh water part of their downstream migration?

A. Yes, there is a great difference in time, that is more important in consideration of the operations cost of the Metolius. The spring chinook salmon we believe the best survival occurs when the young salmon are reared in the stream for one year plus, that is to the spring of their second year. This is quite different from the fall chinook, a different thing in the same specie which we believe the greatest survival occurs when rearing the young fish only about three months and liberating them in the spring of the first year, that is just exactly one year less rearing than the spring chinook.

Silvers, by the way, are also the best survival occurs when they are a year plus, or in the spring of the second year.

Q. As I understand there is a substantial feeding program going on all the time with these young salmon, that they are held at the hatchery?

A. Yes.

Q. Now, you made the statement that you want —that you were responsible for the investigations that led to the proposals by the applicant here with respect to the facilities to the handling fish. Now are you in a position to state whether or not [1187] those proposals were submitted to the applicant on the basis that if he agreed to establish them you would withdraw your objections to the dam?

A. No, that is no condition that we ever agreed to, to withdraw our objections to the dam.

(Testimony of Donald L. McKernan.)

Q. In other words, at the very minimum that you would consider even if the dam were constructed over your protest?

A. I believe that our state law—my understanding is that our state law must recommend facilities to stop damages by dams and our commission simply carried out the statutory duty in the drawing up of these particular plans.

At no time did we contend that these plans were plans which would succeed. We drew them up because we were requested to by the applicant who are citizens of the state and are entitled to the best possible opinion that we have in this regard and we have given it to them.

Q. Now, Mr. McKernan, there have been some illusions in this program here, this report that you and Mr. Johnson are responsible for with respect to the blueback run and its possibilities in the Deschutes system. Do you care to discuss that at this point? I realize Mr. Phillips, that that is not being covered in direct examination, but I think we can cover it here to better advantage.

Mr. Phillips: I have no objection to covering it if you want to. I want to advise the Examiner, however, that you are [1188] or have asked for an estimate of time and I gave it to you and I would like to inform you right now, my understanding yesterday that Mr. Higgs had a few questions of Mr. McKernan, now it has taken two hours and it is going to revise my estimate on cross examination because I have a lot of questions of both

(Testimony of Donald L. McKernan.)

Mr. McKernan and Mr. Johnson and I wouldn't want to be left in a position at this time to think that we are going to finish today.

Mr. Higgs: All I did yesterday and I emphasized that I expressed an opinion and I am a poor expert.

Mr. Phillips: You and I are both poor experts.

Presiding Examiner: We want to get all the data required regardless of how long it takes. If the hearing doesn't end today, it won't end today and that is all there is to it.

Mr. Higgs: Well, I don't like the inference or implication that I am trying to mislead counsel or the commission.

Mr. Phillips: I don't want to leave either you or I in the position that we will finish today.

Mr. Higgs: I will finish today. I said if you fellows didn't take up too much time on cross examination we would finish and I still stay that.

Mr. Phillips: We had better proceed then.

Presiding Examiner: Let's proceed.

The Witness: In the case of blueback there are some specific problems involved and that is the practically—well, the entire Columbia River bluebacks spawns in lakes at the present time in [1189] main Columbia and upper Columbia River. We anticipate that the proposed Priest Rapid Dam will be a relatively dam, will block this entire blueback run in the Columbia River which has been increasing tremendously for the past few years. Then it will be necessary for the fisheries to attempt

(Testimony of Donald L. McKernan.)

to transfer or to do something with this run of salmon which needs a lake to spawn in.

About the only possible lakes that we now know *if* that are favorable of handling bluebacks would be Subtle Blue Lake and the headwaters of the Metolius.

That means then from the standpoint of salvaging any of these bluebacks into the Upper Columbia we will need tributary systems that have lakes at their headwaters which are capable of rearing and propagating blueback salmon. Subtle Blue Lake is the only lake to my knowledge which—in which this is possible without changes in the conditions below. Welala Lake for example, which might also be a possibility, except that it will be above The Dalles, John Day and McNary and some others possibly, but Subtle and Blue Lakes are about the only possibility of blueback runs being maintained.

We are experimenting with that in the Metolius Range at the present time.

Q. Have you any knowledge of any place where a run of blueback has been maintained without a lake at the head of the system? [1190]

A. No sizable runs have ever been maintained without a lake to my knowledge.

Q. Is this run of bluebacks in the Columbia River system at the present time of any economic importance to the fishing industry?

A. Yes, it is. It is of considerable economic importance. Several hundred thousands of pounds are landed annually in the Columbia River.

(Testimony of Donald L. McKernan.)

Q. Are they of high food value in fish?

A. Possibly the highest existing in the Columbia River. At one time the blueback run through the Columbia River produced 5 million pounds annually.

Q. Mr. McKernan, there has been some testimony here with respect to information given out side the fish commission some time back. Your planning operations started in the Deschutes system of chinook salmon in 1937. Have you any records or information that will clear that matter up?

A. Yes, I looked up the records of that particular problem after the testimony here and I found that the first spring chinook salmon which were planted in the Metolius River, so far as our records give, was in 1947—1947 brood planted in 1948 and those fish have not had a chance to return to the present time. We expect them back in 1952. There was a small plant of landlock bluebacks, a little red fish and a few other common names in Blue Lake in 1937 or 1938, but there were no spring chinook [1191] salmon in the Metolius River until the 1947 brood year plant in 1948.

Q. Do your records show from points the stock of that plant came?

A. They came from the Metolius River.

Q. There was already a native stock there?

A. Yes.

Q. Just one other question. Do you find that in races of fish that are spawned and reared in streams that have the cool temperatures such as

(Testimony of Donald L. McKernan.)

in the Metolius that your problems of handling the adult fish and the other environment are multiplied?

A. Yes, because races of salmon, must be reared and handled in cold water environment.

Q. Now, in the plans that were submitted to you and so far as your knowledge of this situation been concerned, has there ever been any provision made for the handling of any of the trout species that inhabits the river by the Applicant's project?

A. Would you repeat that question?

Q. So far as you know in the examination of the plans and specifications and the proposals have any plans been made by the Applicant for the handling of the trout population in the area blocked off by this project?

A. I wouldn't be in a position to know that.

Mr. Bowles: Very well, thank you, that is all I have. [1192]

* * * * *

NORMAN A. RIDDELL

was called as a witness, and having been first duly sworn, was examined and testified as follows:

Direct Examination

Mr. Higgs: If the Examiner, please, I would like to have a typewritten document on the stationery of the State of Washington, Department of Fisheries, entitled "Statement Submitted June 19, 1951, to the Federal Power Commission Concerning the Proposed Pelton Dam Project by

(Testimony of Norman A. Riddell.)

Washington State Department of [1193] Fisheries" marked for identification.

Presiding Examiner: All right, Mr. Higgs, we can do that. I will further identify the document by saying that it consist of six typewritten pages and ten pages of charts and tabulations which are attached thereto and the document will be marked for identification as Exhibit No. 32.

(The document above referred to was marked for identification as Exhibit No. 32.)

Mr. Mason: Mr. Examiner, I don't want to be too technical, but I counted 11 pages here, some of them are thin.

Presiding Examiner: Staff counsel is right. There are eleven pages of charts and tabulations.

You may proceed, Mr. Higgs.

Q. Will you state your name for the record, please? A. Norman A. Riddell.

Q. Where do you reside, Mr. Riddell?

A. Dellview, Washington.

Q. What is your business or occupation?

A. I am Chief of the Research Division for the Washington State Department of Fisheries.

Q. For how long have you held that position?

A. Approximately two and a half years.

Q. What position did you hold previous to that, if any?

A. Senior biologist with the Washington Department of Fisheries. [1194]

Q. And before that?

(Testimony of Norman A. Riddell.)

A. Aquatic Biologist.

Q. How long have you been employed by the Fisheries Division of the State of Washington all together.

A. I first worked for them in the summer of 1939.

Q. What education did you have?

A. I hold a Bachelor of Science Degree in Fisheries from the Washington State School of Fisheries.

Q. Briefly what is the nature of your present duties?

A. I am in charge of conducting the research program which is designed to manage the fish and the food fisheries in the State of Washington.

Q. Are you familiar with FPC Project No. 2030, commonly known as the Pelton Dam Site Application? A. Yes.

Q. Have you examined the plans?

A. I have examined the plans that the Oregon Fish Commission had, yes, sir.

Q. Have you in connection with your duties prepared a statement which is now marked for identification as No. 32 showing or expressing the views?

A. Yes, sir.

Q. Of your department? A. Yes, sir.

Q. Who prepared Exhibit No. 32 for identification? [1195]

A. I prepared the exhibit with the help of my staff

Q. The material therein is obtained from official sources and records of your department?

(Testimony of Norman A. Riddell.)

A. Yes, sir.

Q. In addition to that statement have you had some experience in your official capacity with *the what* effect if any dams might have on runs of salmon? A. Yes, we have considerable.

Q. Just answer that yes. A. Yes.

Q. In what respect? And where?

A. Well in the State of Washington. We have numerous hydroelectric projects at—many of which in some way effects the runs of fish.

Q. Will you name them for the record, please?

A. Well, two of the outstanding examples are the Lewis River and the Nisqually Development. The Lewis River——

Q. What was the last one? A. Nisqually.

Q. You had better spell that.

A. Nisqually, N-i-s-q-u-a-l-l-y.

Q. What has been your experience, with reference to those dams, and how they affect salmon, if any?

A. Well, on the Lewis River, which is a tributary to the Columbia River in the State of Washington, there was a dam constructed [1196] that first started storing water in 1931. Our runs of spring chinook, fall chinook, silver salmon and there were runs of chum salmon that passed above the dam site. Generally the general affect of the dam has resulted in a decrease of the fish runs primarily on the spring chinook runs.

In one year, 1949, the spring chinook run declined to a mere 19 fish.

(Testimony of Norman A. Riddell.)

Q. What year was that? A. 1949.

If you consider the first three years that we have records for it and take an average and compare those figures with the average of the last three years, there has been a decrease of about 97 per cent, in the spring chinook runs.

Q. Now, your testimony is in elaboration to No. 32 for identification?

A. Yes. Those statistics are in Exhibit 32.

Q. The figures you gave us are shown in the graphs or charts which are also a part of No. 32?

A. The figures referred to are in Table No. 1 of Exhibit No. 32.

Q. Will you tell us generally the main problems concerning the effect of dams on fish?

A. Well, the main problems are, of course, to get the adult salmon up over the dam to the spawning grounds in a condition to spawn and then after the eggs are hatched and have developed and [1197] started the downstream migration, getting the fingerlings back down and over the dam.

In the case of the Lewis River——

Q. That is the Ariel Dam?

A. Yes, on the Lewis River.—the fish are trapped at the base of the dam and some of the salmon are hauled and allowed to spawn or released above the dam in order to spawn naturally others are taken for artificial propagation, at the hatchery.

Originally there was a hatchery constructed just below the dam on the banks of the Lewis River

(Testimony of Norman A. Riddell.)

and in 1938 an additional hatchery was established on the headquarters of the Cougar Creek. The reason for that being that it was found impossible to hatch eggs in the Lewis River, the hatchery located below the dam. There was a tremendous mortality occurred and due to reasons then unknown——

Q. Do you know the reasons now?

A. Well, just about 1937, the Washington Department of Fisheries instigated an investigation to see if they could determine the reason for that high egg mortality.

This investigation turned up some data that was highly significant. Referring to Exhibit No. 32 on page or Figure 3 and Figure 4 there was noted a change in the acidity, the water below the dam was or had a lower PH and a higher carbon dioxide content. These were taken, the data was taken in 1937 and 1938 which was some six or seven years after the water was stored. [1198] There was a temperature change also that occurred below the dam.

Q. One of the problems that you accounted or encountered at the Ariel Dam is the transportation of fish?

A. Yes, we had, as I said, a trap facility at the base of the dam in which the runs—the tank was lowered into the trap and the fish were allowed to swim into the tank and the tank was hoisted and placed on a truck body and the fish were either hauled and placed in the river above the dam or

(Testimony of Norman A. Riddell.)

they were placed in holding ponds for hatchery treatment.

The first two years all of the spring salmon were trapped and handled in ponds. There was a tremendous mortality that occurred due principally to temperature change, being too high. They fungused up and died, most of them without spawning or before they were spawned.

In the case of the chum salmon, they actually refused to trap at all and the run of chum salmon that once spawned in the main river above Ariel Dam were lost entirely.

Q. Are there any other problems besides transportation?

A. Of course, the big problem in Lewis River at the Ariel Dam is getting the migrants down over the dam.

Q. How do you do that?

A. Well, the fish that go over the spillway or through the turbines.

Q. With what result?

A. The net result has been a drastic reduction in all runs of salmon. [1199]

Q. High mortality in going through the spillway?

A. We have conducted a survey on another dam in the State of Washington on Baker Dam in conjunction with the International Pacific Salmon Commission and we just this last or just this spring when the runs were coming down and the data has not been compiled completely yet, but we were

(Testimony of Norman A. Riddell.)

trying to determine what percentage of these various species of salmon went over a spillway through the turbines and what percentage of the fish survived to these two avenues of escape, and all I can say at this present time before the data is complete, there was considerable mortality in both avenues of escape.

We have another dam on one of our main rivers, this one is tributary to Puget Sound. There are two dams on it at the present time, Alder and LeGrande, both built at the City of Tacoma.

The Alder Dam is approximately 200 feet and the lower *day,* the LeGrande is a low dam having very little storage, more of a control or diversion dam, but these dams are located above the normal migratory route of the salmon so the problem of transporting the salmon up the dam and back down again as fingerlings was not old, so in spite of that in Figures 5, 6 and 7 of Exhibit 32 show graphically the decrease in the Indian Fisheries and the catch of the Indian Fisheries on the Nisqually River during the periods of 1939, 1940—1949. The construction period on the Nisqually was started in 1941 and continued until late 1944. [1200]

There has been a tremendous decrease in the Indian Fishery in the lower Nisqually in spite of the fact that the fishing intensity during the period has been relatively constant. This would—new problems naturally involved here, one the fluctuating of the water surface below the dam through the peaking processes and through the possible and

(Testimony of Norman A. Riddell.)

chemical changes that occurred as demonstrated in the Lewis River Dam.

Q. Are you able to state whether any major runs of spring salmon have ever been maintained solely by hatchery?

A. No, they haven't. Not to my knowledge. The hatchery should be considered at least I consider it in the State of Washington as a supplement to natural propagation. In other words, we try to produce fish by the river and supplement that production with a hatchery in order that we have two units contributing downstream migrants so that will in turn produce adults for the fishery harvest.

Spring chinook are—or hatchery taken as distinguished from spring chinook are fortunately still in the experimental change, stage. We haven't been too successful at rearing and hatching spring chinook salmon.

We are continually trying to perfect our techniques by—at the present time we are unable to maintain a run fish. [1201]

Q. Is it your opinion, then, that hatcheries are not successful in sustaining a run of salmon?

A. A major run of salmon, yes.

Q. Yes, a major run.

Mr. Higgs. That's all. [1202]

* * * * *

DONALD R. JOHNSON

was recalled and testified further as follows:

Presiding Examiner: You haven't asked any questions of Mr. Johnson?

(Testimony of Donald R. Johnson.)

Mr. Bowles: None whatsoever.

Presiding Examiner: You may proceed.

Cross Examination

Q. (By Mr. Bowles): Mr. Johnson, one fact that I want to clear for the record, here, and I think it will: you are in a peculiar position in respect to this hearing, to be able to state for us; now, you state that you worked for the International Pacific Salmon Fisheries Commission with respect to the Fraser River [1249]

A. I did.

Q. Now, there seems to be some misunderstanding with respect to the various races that enter the stream; in other words, they are entering the Columbia River, or any river system, for that matter, and there may be a number of races of fish, some going to one river and some to another, and so on and so forth, as there is here.

Now, did your investigations with the Fraser River stockeye show that as the sockeye enter the river bound for one stream, where they enter it at different times than other races that come into that river system?

A. I think I understand your question; and the answer to that would be that certain races entered and passed through various portions of the river over a well defined, consistent period; at certain times of the year, either summer or fall, more particularly, there was an overlapping of more

(Testimony of Donald R. Johnson.)

than one race for obvious reasons, there being the number present.

But, in general, certain races were present at certain times.

Q. Now, would that same situation apply to the spring chinook run in the Columbia River from what investigations you have been able to make?

A. Yes. I do not feel that we have gone as far in that type of investigation as was accomplished by the concerted effort [1250] which was conducted by the International Pacific Salmon Fisheries Commission.

Q. In other words, in your opinion, the fish that are going farther upstream enter the river systems before those that are going into the tributaries farther downstream?

A. More or less; that is not entirely true.

For example, fish headed for the Willamette River, we know, are in the river in appreciable numbers before our data shown for the sockeye salmon in the Deschutes is concerned, but that is more or less a generality and has a number of exceptions.

Q. Would you say that the fish that go into the Deschutes go into there prior to those that enter into the Lewis River?

A. I prefer not to discuss the Lewis River, because I have no prior knowledge of the timing of the Lewis River run; I have heard some comments this morning, but I think that other than that I have none, so I prefer not to compare them.

(Testimony of Donald R. Johnson.)

Q. Now, there was some statement in your testimony yesterday with respect to the temperatures in the Deschutes River; have you taken, or have you caused by your staff to be taken, any temperatures at the site of the Pelton Dam?

A. My staff members have—let me suggest this: that it would probably save time if Mr. McKernan were to cover that subject; I have some ideas on it, but they're identical and I believe it would be simpler.

Q. Now, what has, in your experience, been the effect of [1251½] the delay caused by obstructions in these rivers on the upstream migrations of spring chinook?

A. The studies, for example, on spring chinook, we have no precise data—that is a very precise statistic you are after, I believe—and the proportional mortalities of delay are not clearly known for spring chinook.

With some other species, they are reasonably well known. For example, the sockeye salmon in the Fraser River, delays of anything, beginning with a few days, resulted in less survival to the spawning ground as was indicated by tag returns, relative tag returns, and they found, if my memory serves me correctly—I didn't bring that reference with me—a delay of about 2 weeks resulted in no return, no survival at the spawning ground.

Q. Has your study so far with respect to spring chinook indicated that there is an increase in mortality?

(Testimony of Donald R. Johnson.)

A. That, I think, would apply, for example, to delays at Willamette Falls, for example, which frankly is not quite comparable with the Deschutes, except that one of the causes of mortality probably is the combination of temperature rise and pollution in the Willamette River, and you do have the generally rising temperatures in the Deschutes River through the early summer.

Q. Now, there has been some reference made here, and I have forgotten whether you made it or not, to mining operations [1252] on the Deschutes.

Do you know where those are; are you familiar with them?

A. I am not particularly familiar with the mining operations on the Deschutes.

Q. Have they ever given you, as a member of the staff of the Oregon State Fish Commission, any cause for concern in that watershed?

A. One firm applied for use of water some time ago——

Q. Mr. McKernan, I'm not interested in the diversion problem; I am interested primarily in pollution.

A. It has not come to my attention as a problem.

Q. Now, have the logging operations in that watershed given you people any difficulty?

A. Not to my knowledge.

Q. I noticed in your statement, here, there is some reference to the sockeye in the Deschutes;

(Testimony of Donald R. Johnson.)

have you any way of estimating what that run is at the present time.

A. No, but there is no question but that it is small; negligible, I believe, is the word could be used, and it is just that, a handful of fish.

Q. You feel that it could be increased materially?

A. I feel that *there is* sufficient success has been obtained in the past, that there is certainly reason for optimism. I do not feel what you might call an assured thing; it is not. But, I think there is reason for some optimism on the possible [1253] transfer of the blueback and the development of a run there.

Q. Now, we have had a great deal of the situation that obtained within the Columbia River system above Rock Island with respect to so-called transferred or transplanted runs, during the process of the construction of Grand Coulee Dam; did you have any access to the data or what was going on at that time, or what was being done?

A. I had no access at that time; I was occupied elsewhere in the service; but, I have read certain reports relating to that situation.

Q. Are you familiar with the regulations of the two Commissions involved in the State of Oregon, and the State of Washington Fisheries groups that were in operation at that time?

A. I am generally familiar with the regulations of the fishery—commercial fishing, you are talking about, commercial fishery regulations?

(Testimony of Donald R. Johnson.)

Q. Yes.

A. I am generally familiar with the commercial fishing regulations.

Q. Do you feel that if the regulatory measures taken by the states had some effect on the returns to the streams as well as the so-called transplanting operation?

Mr. Mason: Is that during the time of the Grand Coulee?

Mr. Bowles: Yes, on those runs that were transferred as a [1254] result of it.

Mr. Mason: I understood the witness to say that he didn't have any knowledge as to the operations at that time—he could have had a general knowledge of them at that time; maybe I misunderstood him.

The Witness: I have a general knowledge of the regulations as of recent years.

Mr. Mason: During the period of the Grand Coulee?

The Witness: I believe I know pretty well what the regulations were.

Q. (By Mr. Bowles): Now, do you feel that those regulations had any effect on the returns to those streams?

A. They have had an effect more recently than —depending on what you call the Grand Coulee experiment; the primary effect, in my opinion, has been in the last—'48, '49 and '50.

Q. Will you explain what that effect was and how it was brought about?

(Testimony of Donald R. Johnson.)

A. We concede in our opinion, the blueback salmon particularly were in need of protection from fisheries to increase escapement and give the runs a boost, and so we, in effect, by so adjusting our closed season pretty well eliminated the commercial fishery on the runs of '48 and '49.

In 1950, the season was adjusted to permit a limited but greater take, and this resulted in rather sharply increased runs [1255] to the area, for example, above Rock Island Dam.

Percentagewise, or in absolute numbers, they were both appreciable.

Q. Now, Mr. McKernan, are there any fall chinook——

Mr. Phillips: Johnson.

Q. (By Mr. Bowles): Johnson; there are too many "Don's" here—are there any fall chinook, to your knowledge, entering the Deschutes system?

A. There are none, to my knowledge.

Q. Has your department, or any department, of what you know, undertaken any program to place fall chinooks in the streams where none were known to inhabit prior to that?

A. There have been some planting of fall chinook in the Deschutes system, for example; they are pretty much a matter of public record; I have not briefed myself on those particularly. I know there have been plantings in the Deschutes.

Q. But there has been no show of success in there?

A. We have made—that is, members of my staff

(Testimony of Donald R. Johnson.)

have made efforts to find those, particularly when we were first getting underway back in '47, and were unable to establish that there were any fall chinook in the Deschutes system. [1256]

Q. (By Mr. Bowles:) Are there any silver salmon inhabiting in that stream do you know?

A. Not to my knowledge.

Q. Now if I understand from the testimony, you people have not had an opportunity or made any survey of the fisheries resource at the Warm Springs River or the Shitike Creek?

A. We have made some surveys of the Warm Springs River and Shitike Creek.

Q. What do they reveal?

A. They reveal that Shitike Creek is virtually devoid of anadromous fish at the present time and that the Warm Springs River has certainly had some chinook in it.

Mr. Mason: The Warm Springs does have chinook in it?

The Witness: It does have spring chinook in it; in the main stem and several of the tributaries.

Q. (By Mr. Bowles): Your department has no authority to establish any hatchery or regulations on that stream as I understand it?

A. I am not an authority on that particular thing, but I understand similarly.

Q. All of that watershed is on an Indian reservation, is it not?

A. To my knowledge, yes.

I heard that during the course of this hearing

(Testimony of Donald R. Johnson.)

that the [1257] headwaters was not and that was new to me. I thought the entire water was.

Q. In view of the known facts that you and your staff have compiled with respect to the Deschutes River and the anadromous fish in that stream and your survey of the Pelton Site, and the planned for operation including the fish facility and the re-regulating dam in your opinion is it possible to successfully maintain that run of spring chinook in that stream? A. I don't think so, no.

Mr. Bowles: That is all.

Q. (By Mr. Phillips): Mr. Johnson, how long have you been with the Oregon Fish Commission?

A. Since March, 1946, that would be a little over five years.

Q. What did you do before that?

A. I was in the service for about three and a half years. Immediately prior I spent a little time as a civilian between service and the service of the Oregon Fish Commission. Between—I did a little further work between December of 1945 and March of 1946 in furthering my studies in civil engineering at Oregon State College.

Q. Did you graduate in engineering at Oregon State College?

A. I did not. I have almost all the requirements for that degree, but I have not graduated in engineering. [1258]

Q. You were taking engineering, were you?

A. Yes, I was taking engineering, I was enrolled in the senior civil engineering and this one quarter

(Testimony of Donald R. Johnson.)

I spent there, I might add for your benefit that the Army had seen that I had some engineering training while I was in the service.

Q. You hadn't made any specialty of aquatic biology, have you?

A. No. The engineering followed the aquatic biology and again for your interest, I propose to develop both a little further so that I can be of more use in related problems of engineering in fishery in the future.

Q. You were in college prior to the war then I take it? A. I was.

Q. So that your only experience in actual experience has been with the Fish Commission?

A. No, you apparently missed that.

Q. I am sorry that I did miss it, but——

Mr. Mason: Will you speak up?

The Witness: Yes.

A. I spent the greater part of three years in the International Pacific Salmon Fisheries Commission that was originally called the International Sockeye Commission so if you are confused on the various peculiarities that are there, they are the same.

Q. What did you do with the Sockeye Commission?

A. I was engaged in the—primarily—I will go back. [1259] First I was taking part in the study to assess the means of enumerating salmon by various procedures and in tributaries of the Frasier River. Secondly, I was on the crew and out of school at the time and secondedly I was directed to a survey, the

(Testimony of Donald R. Johnson.)

upper tributaries of the Frasier and including the Quesnel district the Bowron River area and the Chapel area of the Upper Frasier River. That involved several tributaries having sockeye salmon which of course this commission was solely concerned and is.

Q. Did you find the way to count them?

A. There are a number of approaches, depending upon conditions.

Q. How do you look upon the matter at Bonneville?

A. I think it is pretty fair. I don't think it is perfect.

Mr. Mason: What was the last answer?

The Witness: I don't think—I said I don't think it is perfect.

Q. (By Mr. Phillips): It is thoroughly accurate though isn't it?

A. There are some sources of error.

Q. Do they use that same method in other streams? A. Yes.

Q. How extensively have your studies of the streams in Oregon been? [1260]

A. I have had considerable experience with a number of streams in Oregon.

Mr. Higgs: Mr. Johnson, you are going to have to keep your voice up.

The Witness: I will try and do better.

Mr. Higgs: You are dropping your voice at the end of a sentence.

The Witness: I make every effort to make sure

(Testimony of Donald R. Johnson.)

I don't. Perhaps if you will state your question a little bit differently I can elaborate.

Q. (By Mr. Phillips): How extensive have you studied the streams in Oregon?

A. I have covered most of the rivers on the coast, especially the Umpqua River, and parts of some other coastal rivers, numerous sections of the Willamette River, tributaries. I have looked over personally the main stem of the Columbia and Snake Rivers in many sections and for a number of miles the Upper Metolius and there are a number of other places that would not be pertinent.

Q. In your study of the streams in Oregon, does that cover the quantity of water in streams?

A. Do I go around measuring water?

Q. No, but do you have occasion to study water records? A. On occasion I have.

Q. Have you studied the water record of the streams in [1261] Oregon?

A. To some extent, depending upon specific problems involved and various places.

Q. If you have a specific problem do you usually make a study of that stream then and study the water content and the volume, characteristics?

A. It depends upon the nature of the problem. I will leave it at that. It depends upon the nature of the problem.

Q. Do you have occasion to study the literature than of the history of the stream that you get from time to time when you are confronted with the problem?

A. I study for example the water flow records

(Testimony of Donald R. Johnson.)

and their fluctuations and flows relative to the direct effect of those as far as they can be measured on the fish population at the moment without particular regard to any development project. I have had occasion to examine the flows with regards to certain developments.

Q. Do you study water temperatures in these various streams of Oregon in respect to the aquatic biology?

A. In most coastal streams and in a good many sections of the Willamette we have obtained temperature data relative to the condition that is more or less routine procedure.

Q. Are those the only things you studied as a routine?

A. The stream having anadromous fish are studied and the routine procedure and the data are gathered more or less completely [1262] more or less depending upon the immediate situation and the outlook.

Q. Do you put the temperature recording devices in the streams that have anadromous fish?

A. Until this summer we have had to my knowledge no recording thermometers in the department. Through the cooperation of the U.S.G.S. we have some temperature records of some streams, not taken however by——

Q. Was that taken by the United States Geological Survey? A. I understand so.

Q. Water Resources Division?

A. I believe so.

Q. Where are they located?

A. I wouldn't know where all of them are. We

(Testimony of Donald R. Johnson.)

have in the records I believe from the Clatskanie River to the Lower Columbia I believe we have data on temperatures from that source on one of the tributaries of the John Day in Eastern Oregon and I believe we have a gauging station, but I am not sure that temperatures were taken from the Warm Springs River and tributary to the Deschutes.

Q. You said they were or were not?

A. I am not sure, I do not recall.

Q. You are not sure?

A. I know—I understand there was a gauging station established in the Warm Springs. [1263]

Q. Have you received any reports from it?

A. I have rather recently received reports embracing these several stations which I have cited for your interest.

Q. Do they have any stations in the Willamette Valley and the Willamette River and its tributaries?

A. As you well know, the U.S.G.S. has a number of stations beyond which I named that they maintain as a matter of course or for other agencies interests. Their publications are of course put out by the U.S.G.S. and the State Engineering—engineers covering these various flow records.

Q. Does the State Engineer take any temperatures, do you know?

A. I do not know.

Q. Do you make any or do you look into the literature on any of these streams and the various uses of the water and have you made any study of the literature on it?

(Testimony of Donald R. Johnson.)

A. Your question isn't clear to me as to just what you mean. Perhaps you will elaborate on it.

Q. Well, do you read such things as Water Supply Papers information from time to time that is gathered by special commission whether federal or state? To determine the quantity of water, the quality of water?

A. I have read primarily the general flows, that is a publication relative to the flows usually published annually and involving for this region as I recall many of the major streams [1264] in Oregon.

Q. Do you keep up on the literature with respect to the use of water such as those put out by the Interagency Committee and the Federal Government to water resources boards and the State Engineer in your studies?

A. From time to time I certainly have read some articles. I am not sure that your question is just what. I certainly have read something.

Q. I was wondering how far you go into the aquatic biology to keep up with the habitat in which fish live. A. Yes.

Q. Do you do that? A. Yes.

Q. Have you made any study of the Deschutes River? A. Yes.

Q. And the history of it?

A. Insofar as we have been able to get information yes. We certainly lack some information.

Q. Have you studied reports on the Deschutes River? A. Relative to what.

Q. Relative to uses, quantities, characteristics.

A. I have seen some data on the water in the

(Testimony of Donald R. Johnson.)

Deschutes River. I do not recall exactly publications I have read.

Q. This application has been pending since 1949. Have you made any study of the Deschutes River during that time? [1265]

A. My studies have been primarily field studies, however, we naturally looked at literature relative to this problem.

Q. Did you have occasion to study, I think it is Report No. 344 referred to by one witness in this proceeding, let me get that, Water Supply Paper No. 344.

A. The number actually means nothing to me. I wouldn't know whether I did or not. [1266]

Q. That's United States Geological Survey, published 1914, the Deschutes River Report; did you *ever read that one?*

A. I do not recall reading it; I may have.

Q. Did you ever read the report on Water Supply, Paper No. 376-E, by Harold Sterns, publication of the United States Geological Survey, published 1931? A. I suspect not.

Q. You haven't.

Did you ever read the report made by Fred Hinshaw under a special commission for the Federal Power Commission in 1921, on the Deschutes River?

A. I doubt it.

Q. You didn't read that report?

A. I certainly do not recall having read it.

Q. How long has Oregon had a Fish Commission?

(Testimony of Donald R. Johnson.)

A. According to my knowledge, since the 1920's, prior to which time the Game and Fish Commissions were one unit; I do not know when the initial organization of the original Oregon Fish and Game Commission was made—in the 1880's or '90's, I presume.

Q. Since what year have they had a separate unit, did you say?

A. In the early 1920's, I believe.

Q. Do you know whether or not the Fish Commission of Oregon made any objection to the application as filed by the [1267] Columbia Power Supply Company on the Deschutes River in 1931 or '2, I think it was—early 1920's?

A. I doubt if they did, and I doubt if at that time the commission was staffed sufficiently to take cognizance of some of these developments.

I doubt further that at that time with the rather considerable area of the Columbia River watershed untouched that has since been cut off from production, that the people concerned, that the Fish Commission at that time could look far enough in the future to appreciate the dangers to the fishing resources.

Q. Well, if there was any salmon run in the Deschutes, don't you think that either the Fish or the Game Commission of Oregon, or the combined commissions, would make a protest at that time?

A. Judging by some of the other things relative to the general knowledge of the early commission, why, I 'm not sure they would.

(Testimony of Donald R. Johnson.)

I noticed in one of the publications cited, it was pointed out that there was no protest by the commission; there was no mention of the fact that they had been consulted or taken any concern in it, so it is impossible for me to state absolutely at this time that there was.

Q. And when the Board of Engineers specially appointed to make a report to the Federal Power Commission on the use of water in the Deschutes River, in August of 1921, do you know [1268] whether or not the Fish or the Game Commission, or the combined commissions, made any appearance at that hearing held in Portland, Oregon?

A. I do not know.

Mr. Phillips: I would like to report for the record, if it is any use to the Commission, I only have one copy—this has no number, but it is a special report to the Federal Power Commission on the use of the Deschutes River, Oregon, by the Board of Engineers, D. C. Henning, Colonel J. B. Cavanaugh, and F. F. Henshaw, in August of 1921.

Q. (By Mr. Phillips): Do you know if anybody made any protest about fish matters in that hearing?

A. No, I do not know; the history of that is—now, not to my knowledge.

Q. Now, Mr. Johnson, you testified about tagging fish and do I understand those were tagged in the Deschutes? A. No.

Q. No; where were the salmon tagged, then?

A. In the various places; our tagging in general,

(Testimony of Donald R. Johnson.)

now, I am speaking, in various places on the main stem of the Columbia River.

If I recall, and I'm sure I do, beginning at the upper end of Celilo Falls, into the lower end of Astoria.

Q. On the Columbia main stem only? [1269]

A. Main stem of the Columbia only.

Q. They put no tags on any fish in the Deschutes?

A. We have put no tags on the fish in the Deschutes.

Q. You mentioned briefly about fungus and disease; how extensive is fungus and disease in salmon?

A. Well, where injuries occur, it can be quite extensive. That can be quite extensive. I have a reference or two relative to that that might, I believe, if I can find it for you it will throw a little light on that.

To begin with, reading from an article entitled, "The retention of adult salmon, with particular reference to the Grand Coulee fish salvage program," by Frederick F. Fish, aquatic biologist. That's with the Division of Fishery Biology, Fish and Wild Life Service, United States Department of the Interior, Special Scientific Report No. 27.

In No. 6 of his—point No. 6 of his summary, he says:

"From indirect evidence, it is believed that the effect of injuries among Columbia River salmon resources as a whole are serious. In all probability,

(Testimony of Donald R. Johnson.)

fish that are injured while in the middle of the river do not successfully complete the migration and spawn unless the lesions are quickly and effectively healed."

Then in point 4 of the same summary, he says, "mean water temperatures below 50 degrees Fahrenheit is believed to represent the optimum for a fish tissue to repair; it will likewise affect [1270] adversely the growth of certain organisms, bacillus columnaris, in particular.

It is concluded, therefore, that the increased mortality of injured salmon can be reduced to a minimum by retaining the fish in a minimum water temperature not exceeding 50 degrees."

Perhaps pertinent on that, also, is a comment in a separate publication, entitled "A report upon the Grand Coulee maintenance project, 1939-1947," by Frederick F. Fish——

Q. Before we get to that one, may I ask a question about the former one you read, so we won't have to go back? A. Yes.

Q. Statement by Frederick Fish and his ultimate conclusion is based upon two inferences, isn't it? A. Mr. Fish—Doctor Fish——

Q. Doctor Fish.

A. ——is an extremely well qualified biologist.

Q. Well, I know, but read the first few words of his statement.

A. I am going to accept his inferences.

Q. Read the first few words of his statement again.

(Testimony of Donald R. Johnson.)

A. "From indirect evidence;" do you wish me to read something else in it?

Q. Read a little farther.

A. "It is believed."

Q. That is what I want. [1271]

A. I began the title of this, I believe, "A report upon the Grand Coulee maintenance project, 1939-1947," by Frederick F. Fish and Mitchell G. Hanavan.

Since the previous comment referred to tissue repair in relationship to temperatures, I think it is pertinent to consider the paragraph on page 14 of this report—by the way, did I give you the number of it? It is Scientific Report No. 55, also Fish and Wild Life Service.

The statement was, and I quote, "wounds and bruises commonly were observed upon the fish entering the traps." It was concluded that most of these injuries were inflicted through contacts with the rocks and structural abutments below the dam, for injured fish were common to the Rock Island Dam before Grand Coulee fish maintenance project was undertaken.

Q. Have you observed the salmon spawning?

A. If you mean actually depositing their eggs, I have watched thousands and thousands of salmon spawning, and I have never seen one deposit its eggs; but, if you mean the general acting and digging in the gravel, I have.

Q. Well, when you watched them digging in the gravel, almost all these salmon streams, you have

(Testimony of Donald R. Johnson.)

observed wounds on these fish, too, haven't you?

A. Sir, would you repeat that?

Q. You have observed wounds on the fish, too, haven't you? [1272]

A. Particularly at the end of spawning and when they have completed spawning; generally, a substantial part of the fish when they first arrive at the spawning grounds are in good condition, relative to their appearance, depending on the species, some time later when they are spawning, and then are certainly more moth-eaten animals.

Q. Where did you observe them in such excellent condition?

A. Oh, on the McKenzie River, on the South Santiam River.

Q. How far up on the McKenzie?

A. Both near Leaburg Dam and near Henrich's Bridge; by the lower rapids, by the way—not above Leaburg Dam; that would be, for the benefit of others here, I suppose, about 25 miles or 30 miles above the mouth of the McKenzie.

The McKenzie, in that mouth, is roughly a hundred odd miles above Portland, here to give you an idea of the distances, in the Willamette system.

Q. And how far up on the Santiam, would you say?

A. I've seen salmon on the South Santiam, immediately below our racks, I believe, as far up as I have seen them—of course, I've seen them a number of other places.

Q. Any on the North Santiam? A. Yes.

(Testimony of Donald R. Johnson.)

Presiding Examiner: You are speaking about salmon spawning, generally, or salmon in good condition?

The Witness: He asked me where I had seen salmon, first, [1273] I believe.

Mr. Phillips: I asked you where you had seen spawning, or at least where you thought they were spawning; you don't see them deposit the eggs, I will agree with you on that.

Mr. Mason: I thought the question was how far he had seen them in good condition; that's the way I understood the question.

The Witness: The same answer is usable, with this exception, to make sure that we don't misunderstand each other: there is no question but what fish held in the vicinity of our racks do suffer some injury, and it is not uncommon to have the fish get injured on the nose particularly, and the fungus develops clear back over the eyes and into the gills, and depending upon the conditions, in some cases rather heavy mortalities have occurred; in other cases not.

The spawning fish that I have seen adjacent to Leaburg Dam and then on down below the racks in the McKenzie some distance, that is, going down to where the fish, where I couldn't contact them, where they were in very fair shape.

Q. (By Mr. Phillips): How far up on the Santiam, did you say?

A. I have seen fish, but not actually right at spawning time, on the North Santiam.

(Testimony of Donald R. Johnson.)

Q. On the North Santiam.

A. As far as the spawning time is concerned.

Q. Do you have any racks on the North Santiam? A. We do.

Q. And how long have you had the racks in there?

A. I don't recall. I would guess a number of years.

Q. Before your time with the Commission?

A. Yes.

Q. You have racks on the South Santiam?

A. Yes.

Q. Are these racks counting racks or taking racks?

A. They are taking; and there have been some counts of fish above them, but quite limited. Usually when they let fish go through they are restricted enough, and that number of fish that go on through, our personnel are restricted enough so that we can't afford to use manpower to count the fish that pass when they are busy with other duties.

Q. You can't count them.

A. It would be entirely possible, I'd say, but we are not staffed with sufficient members.

Q. That's because of your limited manpower?

A. Mm-hmm.

Q. What do your men do while they are going through the racks?

A. If I were to enumerate all the duties the personnel associated with hatchery, it would be a little ridiculous; these men are associated with the opera-

(Testimony of Donald R. Johnson.)

tion of a hatchery. I could [1275] enumerate some things, but they certainly are busy, cleaning other parts of the rack; they are busy, perhaps repairing various and sundry damage that have occurred through minor freshets, and so on.

Q. Racks on the McKenzie, too, you say?

A. Yes.

Q. Are those counting racks or taking racks?

A. They are primarily for taking fish.

Q. Taking. A. Yes. [1276]

Q. Now on the Deschutes River, you mention in your testimony as to the number of fish in the Deschutes and the capability of the Deschutes. How did you make this observation on those?

A. The estimates of spring chinook for example the number and proportion of fish arriving at the racks on the Willamette you will recall was something over ten per cent.

Q. That is on the Willamette? Where abouts.

A. On the various tributaries of the Willamette.

Q. Tributaries of the Willamette.

A. You will recall that we did have racks on the Frazer portion of the salmon streams. The number of fish in the Deschutes on the average arriving out of racks and handled by our hatchery men in the last four years has been in the general magnitude of 258.

Q. Can you give use the figures by years, if you have them?

A. I have them and as I obtained them. In 1947, 275, can you hear that? 1947, 275; in 1948, 281; in 1949, 281; in 1950 196.

(Testimony of Donald R. Johnson.)

Q. You don't have count for '51 yet of course?

A. That is right.

Q. Are there any salmon up there at all this year?

A. There are some of our staff members that have been there and salmon have arrived at the Metolius.

Q. How many do they have up there this year so far?

A. From my conversations I believe just 15 or 20 fish at [1277] this early date.

Mr. Bowles: May I interject a question there?

I understood those figures, Mr. Johnson, to be from the Willamette, or was I mistaken in that? Or, are they from the Metolius?

The Witness: These are Metolius.

Q. (By Mr. Phillips): From the hatchery?

Presiding Examiner: I don't get the connection between your testimony with respect to the facts on the Willamette.

The Witness: Well, I was using the Willamette and the percentage there.

Q. (By Mr. Phillips): Insofar as you got ahead of me, I'll be coming back to the Willamette again.

Presiding Examiner: All right, let's do that, because there is a gap there.

Mr. Mason: Are you waiting to see what he is going to fall into?

Q. (By Mr. Phillips): Your averages, how many fish for the four years? A. 258.

Q. You segregate those between male and female, do you not? A. Yes. [1278]

(Testimony of Donald R. Johnson.)

Q. How many of each? 1947?

A. 1947, males 210.

Q. 210. A. Females, 65.

Q. 65 females.

A. 1948, males, 205; females, 76

Q. '49? A. '49, males 182; females, 99.

Q. 1950? A. Males 145, females 51.

Q. In your trap on the Metolius, you take all the fish that come up the river, do you not?

A. I don't think that is quite true, but I think it generally takes most of the fish.

Q. You have a fish tier up there?

A. I do not know for sure, I understand that at least some fish go up and spawn naturally.

Q. While we are on that river, how many salmon go up the Warm Springs?

A. I believe that you have our brief.

Mr. Mason: Are you referring to Exhibit 31 now?

Mr. Higgs: Yes.

Presiding Examiner: Yes.

A. On page 6, the members of my staff, my associates have estimated respectively 2500 and 2000 in the years 1949 and '50. [1279]

Q. (By Mr. Phillips): That is an estimate of how many are spawning—Oh, I see.

A. It is a little below the center of the page.

Q. 2500 spring chinooks at the Warm Springs, Beaver Creek and Mill Creek.

A. Those are tributaries.

Q. Do you have them separated in any way?

(Testimony of Donald R. Johnson.)

A. I am not sure that we have.

Warm Springs River, in 1949 were 1500. Beaver Creek, 1000, Mill Creek, 100. I realize it didn't add up perfectly, it is not intended to be.

Q. What have you got for 1950?

A. 1950 Warm Springs River, 1000, Beaver Creek, 750 and Mill Creek 300. That creek which was omitted in 1949, due to the lack of the familiarity of the area, Badger Creek, was estimated to have 100 in 1950.

Mr. Mason: Could I ask whether that is the count or the estimate. I am getting lost here.

The Witness: That is an estimate.

Q. (By Mr. Phillips): Those were estimates, I take it? A. Yes.

Q. Who makes the estimates?

A. Members of my staff. I would—Mr. Schoening or [1280] Mr. Donaldson, I am not sure which.

Q. The estimates were not made by you then?

A. I reviewed the evidence and certainly discussed the entire matter with them and had associated with myself with these men on other streams and so forth.

Q. Is Mr. Schoening or Mr. Donaldson, did they do the field work?

A. They were associated with the field work as I recall. I can check on that too, but I am quite sure that they were.

Mr. Schoening was not concerned with 1950. I don't think. Mr. Schoening is presently in the first Marine Division in Korea and I think he left before

(Testimony of Donald R. Johnson.)

he had an opportunity to take part in that work in that year, yes, he was not there in 1950.

Q. How many fish did they actually see?

A. In 1949 on the Warm River, 95 fish.

Q. That is the main stem?

A. Yes, of the Warm River—wait a minute now. There were some dead fish seen, which were separate from that. 95 and 3 dead fish.

Do you want some further information?

Q. Yes, if you want to give what they actually saw on the other tributaries.

A. Continuing in '49, 61—wait a minute 75 fish live and dead on the Beaver Creek; 4 fish live and dead on the Mill Creek, Badger Creek, you will recall I pointed out was not surveyed that [1281] year.

Q. That is right.

A. 1950, Warm Springs River, 20 fish.

Q. That is what they saw?

A. Yes. Live and dead. Beaver Creek, 10 fish; Mill Creek, 28 fish; Badger Creek, 15 fish.

Q. Are those figures from what they make their estimates?

A. Those are the figures from which they make their estimates of familiarity of the stream and conditions of course.

Q. Do you think the water temperature—did you take any water temperatures at any time in the Warm Springs River?

A. I suspect that we have.

Q. What do they show on water temperatures?

(Testimony of Donald R. Johnson.)

A. August 27, these are in various places, before the mouth of Mill Creek, I have the time of the day here too; 53 degrees at 2 p.m. August 28, at a place known as HeeHee Mill 46 degrees at 10 a.m.; on August 28 at 12:10 p.m. at the head waters on the Skyline Trail Road, 44 degrees. August 28 at 3:30 p.m. one channel of the river in the upper section of the swamp, 45 degrees.

Q. 45? A. 45.

August 28 at 3:45 p.m. the main channel in the swamp above Schoolie, 46 degrees. August 29, 9:30 a.m. three miles below Schoolie Ranger Station, 46 degrees. August 29, at 11:30 a.m. [1282] Heehee Mill, 51 degrees. August 30 at 2:35 p.m. also at Heehee Mill, 56 degrees.

Those are the records that I have for 1949.

Q. Do you consider the Warm Springs pretty fair salmon stream? A. Yes.

Q. Getting back to the estimates that you had on the Warm Springs, how do you apply the ratios the arthimatical computations to the actual number of seen in order to arrive at your estimate on the stream.

A. You are proposing that we have some fact about which we multiply.

Q. That is what I would like to find out if there is some?

A. Yes, the question is we certainly do not have any one factor for the simple and obvious fact that the number fish screened in tributaries will vary enormously with their size time relative to the

(Testimony of Donald R. Johnson.)

spawning season, and a variety of other factors, whether the time of day the observation is made, whether or not the observer had a pair of glasses which will aid him in seeing in the water and such things as that.

Q. Do your observers use polaroid glasses?

A. Generally, yes.

They are directed to use them entirely. I can't say that they always do.

Q. Let's presume that they were directed to use them and [1283] that they have used them in their observations. A. I presume so.

Q. How do you go about actually making your estimates from what you actually observed in the stream?

A. If they saw, primarily on the experience that has been gained through certainly in my case through a number of years in making this kind of thing and through my contact with other men who have faced these same problems and who have had the job of estimating runs and to substantiate those estimates.

Q. Let's take one and see how it works out. In 1949 actually saw 95 fish and that was in the main stem of the Warm Springs. How do you make an estimate on those?

A. The past experience for example we know that—as was stated in some instances yesterday, that the relation of the stream size and the reasonable limit number of fish present let me give you an example. If we were to be planning for a structure

(Testimony of Donald R. Johnson.)

across the Columbia River at say just above the mouth of the Deschutes, I am not involving the Deschutes at all, I am just taking that site, say the Columbia River and let us consider only the fall run. If we were to take the number of fish that we had seen and I had been over the Columbia River and the Snake River by boat and truck and airplane the number of fish we had seen dead and alive would be less than 500, speaking of fall chinook now. I want it understood, as a maximum the estimate or escapement into that area has been in the general [1284] magnitude through the time we have examined it of 65 to 95 or 100 thousand. It is obvious that no one can apply an identical factor to the various streams. It is also obvious that with evaluation, qualitative though it may be, that a trained man can make reasonable estimates of salmon runs in the streams.

Q. What proof do you have that such an estimate on such a formula are correct?

A. The survey has been used elsewhere and in general for example, the percentage applying to—I mentioned on the Umpqua River yesterday, on surveying similar streams under similar conditions, it is not unreasonable to assume that your estimates are of the same magnitude.

We do not pretend that these are precise, obviously.

Q. Well, I will ask you again then, what proof do you have that your method of estimating is correct?

(Testimony of Donald R. Johnson.)

A. I believe that the corborative evidence obtained in a number of other places, the North Umpqua the Willamette and other instances that I can't cite precisely, although I had experience with them myself in British Columbia indicate that the general surveys and the estimates are in the general magnitude of the runs present.

Q. Do you mean to say that the only proof that you have that your estimating is correct is the fact that it occurred at some other place?

A. When it is in several places, I believe that it has [1285] a bearing on this type of figure.

Q. What did you find on the North Umpqua for instance?

A. I mentioned yesterday that we hadn't been able to find as I recall and I am certain I am correct, just under 15 per cent, 15 per cent of the fish known to be present.

Q. How many fish did you see on that stream?

A. A few hundred, I don't remember.

Q. You don't have those records with you?

A. I do not have them with me.

Presiding Examiner: Would this be a convenient time to take an afternoon breather?

Mr. Phillips: I presume so, Mr. Examiner.

Presiding Examiner: We will be in recess for five minues.

(A five-minute recess was taken.) [1286]

Presiding Examiner: Please come to order.

Q. (By Mr. Phillips): Mr. Johnson, I'm still a little foggy on just how to do this—let me try

(Testimony of Donald R. Johnson.)

again: when you have an observer out on a stream what does he do in the observation of salmon? Let's take the Warm Springs, as an example; what does he do on the Warm Springs?

A. He actually walks in the stream, watching the fish and observing; the same type of things has been done on the Willamette, where, you will recall, I pointed out that about a little less than 8 per cent of the fish known to be in the watershed were spotted.

I might point out a case that would help you understand the situation further, which was drawn to my attention—in the Entiat River, a tributary of the Columbia above Leavenworth——

Q. That's in Washington?

A. Yes.

In one case, they were hauling fish, as has been mentioned here, from Rock Island Dam to the Entiat River, at the time it was related at Coulee Dam, when they placed one or two hundred fish in the area a mile long having racks and a number of fish that they were able to find these were adult chinook salmon the number of fish they were able to find was in the same magnitude 5 to 15 per cent I don't remember the exact figures but they were certainly in that magnitude. [1287]

Q. How deep was the Entiat River?

A. It's fairly shallow; I haven't been there, myself.

Q. Well, I've been there; how wide is it?

A. I do not know.

Q. Well, now, let's get back to the Warm Springs; how far did your field men walk?

(Testimony of Donald R. Johnson.)

A. Through the entire section in which there is any indication of decent spawning conditions.

Q. Well, say a day; how far does he walk in a day on the river?

A. Oh, I couldn't say off hand.

Q. Roughly?

A. It would vary with the place and conditions.

Q. Have you done some of this work?

A. Yeah—not myself, in the Warm Springs.

Q. How far can a fellow walk in a day on this kind of work?

A. Oh, in the general magnitude of 3 to 5 miles.

Q. Well, now, on the Warm Springs, then, in 1949, they saw 98 fish, I take it, dead and alive?

A. Ninety-five, alive, and three dead.

Q. Now, as you say Mr. Schoening and Mr. Donaldson made this; how long has Mr. Schoening been counting fish?

A. A couple of years; he spent about three years with us and had experience with other fishery agencies, the exact nature of [1288] which I do not exactly recall, but prior to joining our staff; he was a graduate of the University of Washington.

Q. How long had Mr. Donaldson been counting fish?

A. Probably in the general magnitude of three to four years; I'm not positive, again, as to that, either.

Q. And they did the estimating?

A. They did the estimating.

Mr. Schoening had been with me for a consider-

(Testimony of Donald R. Johnson.)

able period on some various and sundry tributaries and was able to of course profit from any experience that I had gotten.

Q. Now, taking those 98 fish on the Warm Springs, what factor, on that particular stream, what factor or factors do you use to arrive at an estimate of 1500?

A. I already pointed out that we made no specific multiplication; it is obvious that if you divide 98 into 1500 you will get a factor.

Q. I got a factor of about 15, or pretty close; 98 and 1500 ought to be pretty close to 15; is that the factor you used?

A. As I pointed out it wasn't a matter of factor in that fashion.

Q. Well, then, in 1950 you saw 20 fish?

A. Yes.

Q. And you came up with a figure of a thousand?

A. I already pointed out that the percentage of fish seen is obviously affected by certain conditions of relative [1289] spawning time, weather conditions, the height of the water and so forth and a man who has had some experience and training in fish enumeration can within reason take these things into consideration the same type of thing has been done elsewhere. One thing I'm not sure I made clear was that we do estimate in 2500 fish above Pelton dam site I'm not sure I made that clear.

Q. Yes, I was coming to that a little later.

Mr. Mason: Could I interrupt just a minute? Are these fish that you saw spawning fish?

(Testimony of Donald R. Johnson.)

The Witness: The fish would not be in the actual act of spawning but on the spawning areas.

Q. (By Mr. Phillips): The fish you can see are both males and females on the Warm Springs and its tributaries? A. Yes.

Q. What differences were there between 1949 and 1950 on the Warm Springs that would change your factor from, say 15 to 50, if that was the factor?

A. I do not recall. The obvious answer is that—one thing I believe I recall is that the relative spawning time they did not run into spawning time as early in 1950 as I recall it.

Q. When did you make your observations?

A. At about the time the fish are spawning.

Q. In August?

A. Late July and early August. [1290]

Q. Now, these are spring chinooks, are they?

A. They are.

Q. And they wait up there quite a while, according to your testimony here, before they spawn?

A. Generally speaking, that's the truth.

Q. How long do they hang around the stream before they spawn?

A. In the Willamette system for, oh, roughly two months.

Q. Well, how long do they lay around in the Deschutes system?

A. For a slightly less period, I believe, because of the later time of passage into the Deschutes system, as indicated by the period that they are taking fish at Shirar's Falls.

(Testimony of Donald R. Johnson.)

Q. What is your best guess on how long they lay around the Deschutes system?

A. I would guess an average of six weeks or two months.

Q. So that during the time of the counting, why, these fish are laying around the stream?

A. During the time of counting they are moving on to their spawning place, by and large, and not laying in the holes.

We count fish while they are waiting to mature, your count will be much, much less than the percentage indicated.

Q. All right, they had moved out of the spawning beds, and the counter, was he working in the spawning areas, then? A. Yes. [1291]

Q. So that they are more visible in the spawning areas than in the pools, aren't they?

A. In general, that's correct.

Q. Yes.

Well, didn't he take his '49 and his '50 figures, the same as the '49, in the spawning areas, then?

A. The exact spawning time varies, somewhat, slightly, from year to year, and because of the fact that we have responsibilities other than the Deschutes, it is not necessarily possible that we put our men there as precisely the same time or just wait there while the fish are getting ready to spawn, so it is obvious that the counts would normally not be necessarily exactly the same, nor is the spawning period.

Q. Now, what dates was he there? Does he show in his report? A. Mm-hmm.

(Testimony of Donald R. Johnson.)

Q. Well, let's see what dates he was there.

A. Preliminary survey——

Q. Which year is this, now? A. 1949.

Q. All right.

A. By several men, was made on July 18th to 21st, inclusive; and that was prior to the actual time of spawning.

Q. Would we assume that the three dead fish had already spawned and died? [1292]

A. Probably the fish had not been spawning at all and they probably saw virtually no fish at that time.

You have to be on the spawning grounds at the time the fish—at or near the time the fish are spawning, or you will see little or no——

I have been at spawning areas in British Columbia where five to ten thousand salmon have spawned, and oh, a month of six weeks afterwards, why, you wouldn't know, off hand, if you were just a passerby, that there had been anyone there at all.

Q. Now, what date in 1950?

A. Let me give you first the—1949, the spawning grounds—I mentioned the preliminary survey was made from August 24th to September 3rd.

Q. August 24, 1949?

A. 1949.

In 1950, August 24th to 28th, inclusive.

Q. Now, what allowance do you make for a man seeing the same fish twice?

A. If you go over an area, and do not repeat over the same area, it is unlikely that you will see the same fish twice.

(Testimony of Donald R. Johnson.)

Mr. Mason: Speak up just a little, please.

The Witness: Yes.

If you just go over an area continuously, like if I walk on down town here, down through town, I'm liable to see the same man twice, the same as you don't see the same fish twice. [1293]

Q. (By Mr. Phillips): Well, your experience is different than mine.

A. You've been loitering in the bars, perhaps.

Q. Well, isn't there a possibility a fellow sits down and eats lunch by the side of the stream at noon, some of these salmon might pass him up?

A. At the time they have horizontal spawning grounds they select places to spawn pretty much so the fish are not actually moving so much this time of the year, pass up the Deschutes; and in the Metolius, where they would be moving on past.

There are two different situations that should be clearly understood; one, in the migrating time, and the other time when they have—three—the second time when they are quiescent adjacent more or less to their spawning areas; and the third when they have selected their spawning areas and pretty much quiescent on them.

Q. Well, now, will you try to explain again why you have a different ratio between 1949 and 1950, when your estimate one year bears 15 times the number seen, the 1950 is 50 times the number of times seen, making an estimate on the same stream, at the same time of the year?

A. The times were identical; the spawning of the fish was not necessarily identical.

(Testimony of Donald R. Johnson.)

Mr. Mason: What was that last part? [1294]

The Witness: The time of the spawning of the fish was not necessarily identical.

Q. (By Mr. Phillips): How do you know the spawning takes place there if they are on the spawning beds?

A. You can tell by the physical appearance of the fish, to a great extent, by the proportion of evidence, of the dead ones.

Q. How many dead ones did you find in 1950?

A. It seems to me I gave you that.

Q. Well, if you did, I don't remember.

A. On the Warm Springs River, one out of a total of 20; one versus 19 alive.

Q. One dead; that's a little less than the ratio of three to 95, isn't it?

A. Yes; that was my point.

Q. How many dead on—what is it, Beaver Creek?

A. Beaver Creek, there were none dead seen in 1950.

Q. None dead.

What other tributaries did you have there?

A. Mill Creek.

Q. Mill Creek?

A. Two were dead and one alive—pardon me, I was reading the previous years—1950, now—well, first, 1949, one out of four were dead. [1295]

Q. Yes.

A. In 1950, two out of six were dead.

Q. Yes.

(Testimony of Donald R. Johnson.)

Well, now, your usual spot check that you referred to on the Willamette gave about 80 per cent?

A. Those weren't spot checks; those were rather good coverage.

Q. Well, that's the ratio you used from your experience on the Willamette and its tributaries, you say?

A. That's the ratio we find in the course of surveys of members of the Commission.

Mr. Mason: I'm sorry; I can't hear you.

The Witness: That's the relation we find in the course of surveys in the Willamette streams.

Q. (By Mr. Phillips): Why did you use a different ratio on the Warm Springs?

A. The tributaries to the Warm Springs are not identical to the Willamette.

Q. Well, what makes the difference in your thinking, then?

A. The fact that they're not identical.

Mr. Mason: What was the last answer?

The Witness: The fact that they're not identical obviously calls for a different situation. [1296]

Q. (By Mr. Phillips): Tell me this, then: if you had to use a different ratio on every stream, how did you develop the ratio on the Warm Springs?

A. Through considerable experience with this type of thing, both on the Willamette and on the tributaries to the Fraser I have learned to evaluate those things and have taken the opportunity to acquaint my associates with my findings and of course

(Testimony of Donald R. Johnson.)

they have added to it with observations of their own.

Q. Well, what ratio do you use on the Fraser?

A. Again that varies with the locality.

Q. Well, what different ratios do you use on the Fraser?

A. I do not recall precisely; I could give some general facts or features from memory, but they would be subject to error; the exact number are in my notes, and I do not recall them at this time.

Q. Well, each river system, as I understand it, then, you have to develop a pattern of some kind?

A. Yes, you have to be acquainted with that river to make observations of this sort intelligently.

Q. Can you tell us what characteristics there are on the Warm Springs that make higher ratios than the Willamette?

A. The Willamette River has been covered more thoroughly and by more personnel at the time of spawning or individual places than on the Warm Springs.

The Willamette River, the tributaries are of different [1297] size.

On the Willamette itself, I might point out, when it comes to expanding the actual estimates which I have mentioned in numbers, it is not necessarily true that identical percentages were produced, that again the percentages were not necessarily varied, and it is true that man needs to have a certain amount of experience in these things, a background where some explicit counts have been made, in order to make a reasonable estimate. [1298]

(Testimony of Donald R. Johnson.)

The number of fish taken at the racks in the Willamette is generally also a useful factor and was used in a general way to estimate the number of fish in the Metolius.

Q. You say the same ratio was used in the Metolius?

A. I said that the general features—as far as the positioning of the racks and the relative to its tributaries on the Metolius is similar to that on the Willamette.

Q. Now, getting back to the Warm Springs River, what difference are there in the Warm Spring area that would account for a difference in ratio?

A. The Warm Springs River is different in size, it is in a different type of terrain from the wooded —well, heavily wooded Willamette watershed. The flows are different in the tributaries. There is a whole galaxy of difference between the two.

Mr. Mason: What was the last?

The Witness: A whole galaxy of difference between the two.

So far as the survey is relative to the exact percentages. It does not render the fact that the Willamette rack fit in substantially the same position on the Willamette as the racks do on the Metolius.

Q. (By Mr. Phillips): Now, then the Warm Springs is an open stream, it flows through open country, doesn't it? A. Pretty much. [1299]

Mr. Mason: Mr. Johnson, I am having an awful time hearing you. Will you speak a little louder?

(Testimony of Donald R. Johnson.)

The Witness: Yes. The Warm Springs is more or less generally in open country.

Q. (By Mr. Phillips): And it is relatively shallow, isn't it?

A. Relatively shallow.

Q. It is a very clear stream, isn't it?

A. I find out that I haven't been there much personally but I believe it is relatively clear.

Q. It comes from glacier waters, doesn't it?

A. There may be glacier waters on Mt. Jefferson, but I am not sure.

Q. On the Warm Springs River?

A. I am not sure.

Q. And it hasn't any great amount of brush or vegetation along the stream, along the sides, has it?

A. Well, maybe adjacent to the sides it has some.

Q. A few willows?

A. In making the surveys it would be rather pointless for me to start enumerating the willows. I don't recall.

Q. It comes through a country that is forested with what forest there is?

A. Pretty much pine.

Q. Pine doesn't grow as much like the douglas fir, [1300] separated? A. That is true.

Q. Well, now in a stream of that kind where there the water is clear and the water is shallow, wouldn't you be able to see a greater percentage of the fish that enter the stream than you would in the Willamette?

(Testimony of Donald R. Johnson.)

A. Let me go back to the Entiat River where I am told the water is clear and rather shallow and the percentage of fish seen was rather low, five to fifteen per cent was the range that I was told.

Q. You never saw the Entiat?

A. No. It has been seen by a large number of fish men and others.

Q. But your ratios are different in each stream?

A. Yes.

Q. On a clear stream and shallow, and in open country and with not too much vegetation, isn't it a fact that your visibility is better than it is in a stream like the Willamette or its tributaries where they have heavy forests beside it?

A. The—that is in general true. I should point out however, that the Willamette has been covered very thoroughly by a man who has been there for about five years and it is true that he has surveyed the Warm Springs for a least two years now.

Q. How long has your hatchery been up there?

A. I believe it was established, and again—It was [1301] functioning in 1947.

Q. How long before that did you start building it?

A. I wasn't up there at the time, but I guess it was a year or so.

Q. Do you still think that your estimates are correct on the Warm Springs though when you get these great variations of factors ranging from 13.3 per cent on Beaver Creek, for 1949, or that is the minimum is 10 plus on Mill Creek for 1950 rang-

(Testimony of Donald R. Johnson.)

ing from there up to a maximum of 75 per cent as your factor on Mill Creek in 1950—Beaver Creek in 1950.

A. I believe those figures are in the magnitude of the population at present and did not claim at any time that these were precise figures. I believe they are entire reasonable.

Q. What is the difference between Beaver Creek and Mill Creek in that characteristic?

A. Since I wasn't on the streams themselves, I can't say. Obviously there are big differences.

Q. Do you know what the differences are?

A. I do not.

Q. You supervise the figures and reviewed the estimates? A. Yes.

Q. But you never found out what the differences were?

A. I probably did, but I don't recall them.

Q. How would you account for this then, say in 1949, Beaver Creek has a factor of 13.3 and Mill Creek had a factor of 25? [1302]

A. It seems to me that I have made the source of the difference rather clear and the general comments I have made.

Q. Well, do you know anything to account for that?

A. I would have to make reference to the detailed notes of the men who had been in the field.

Q. Then take the following year where the situation is just reversed. On Beaver Creek there is a factor of 75 per cent and Mill Creek a factor of 10 plus.

(Testimony of Donald R. Johnson.)

Why would those fish streams just have the factors entirely reversed in the space of one year?

A. It could be entirely possible depending upon the spawning conditions at the time of the survey.

Q. They are both tributaries of the or about the same distance on the spawning area, aren't they?

A. I don't recall their exact position. I have seen them often on the map. They are not too far apart, I presume.

Q. Before we leave that subject the estimations in your report here, and in your testimony I think 2500 salmon passing the Pelton dam site. Upon what were those estimates made?

A. I used the general fact that we obtained from the Willamette.

Q. Were those what you saw in the racks at the hatchery?

A. It would depend upon what we took from the rack and plus the counts of the fish, plus the general knowledge of a few of the number of the fish that went through which we counted. [1303]

Q. Where were these fish passing through?

A. You are referring now to my point of passing through on the Willamette and I——

Q. No, I am on the Deschutes yet.

A. What is your question again, where were the fish passing through?

Q. In your testimony the fish passing through, you took your counts from the hatchery before it went through?

A. I am referring to what went through on the

(Testimony of Donald R. Johnson.)

Willamette. Apparently I am confused.

I was referring to the fish arriving at the racks in the Willamette.

Q. Oh, did you determine how many were in the Deschutes?

A. In a general way to determine how many there are in the Metolius system.

Q. All right, in the Metolius then. In one statement on page 6 of your statement here which I understand you prepared the first 15 pages of you estimate the population of spring chinook spawning in the Metolius for 1949 to 1950 numbered about 2000 fish. Now, first let me ask you 2000 fish, does that cover two years as an estimate or one year?

A. That actually is based and should be back to '47 and '48 because they were based on the actual rack take.

Q. Is it one year or more than one year on the 2000 fish?

A. Approximately the same number are estimated for these [1304] years.

Q. For each year? A. Yes.

Q. You base that upon what?

A. The fish appearing at our rack in the Metolius primarily plus for the entire estimate and the knowledge that we know there are fish in the Crooked River and some, at least some spawning at the mouth of the Crooked River

Mr. Mason: What was that last, please?

The Witness: Some fish were known to be in the Crooked River plus some spawning at the mouth of the Crooked River, as I understand.

(Testimony of Donald R. Johnson.)

Q. (By Mr. Phillips): Have you seen any spawning in the mouth of the Crooked River?

A. No, but I have reports there is spawning.

Q. Who makes those reports to you?

A. I have heard from the Game Commissioner's personnel.

Mr. Mason: Game Commissioner's personnel?

The Witness: Yes.

Q. (By Mr. Phillips): Who from the Game Commission told you that?

A. I believe it was perhaps Mr. Campbell or Mr. Mathesen did.

Q. Now your report indicates that you surveyed about 17 [1305] from the Metolius River and didn't see any salmon, isn't that correct?

A. No, let's put it this way: We saw fish immediately below the rack area on down below that for the remainder of the distance we did not see any fish. We did see evidence of spawning.

Q. Now the number passing at Pelton Dam you estimated at 2500. What do you premise that on?

A. Approximately 10 times the total of 250 odd at Metolius is 2500. I assigned some of those to the main—to the section not of the Metolius because of the fact that there is no spawning in those areas.

Q. I think you have in here a statement some place that there were 5000 steelhead in there?

A. Yes, I don't know which page it is, you may have found it by now, but we have estimated that.

Mr. Mason: Page 7.

(Testimony of Donald R. Johnson.)

Q. (By Mr. Phillips): Yes. What do you premise your estimate on concerning the 5000 steelheads?

A. Well, that is not a precise figure by any manner or means. I want to make that clear to begin with. There are some thoughts that we had in mind relative to that estimate and it is without question rough. We know that there is a sport fishery of some importance for steelhead trout in the Deschutes River [1306] down below.

Q. Down below what?

A. The areas that I know have steelhead and have approximately — they have steelheads from hearsay at the mouth of the Metolius. They caught some from reports that I have at Steelhead Falls, I might mention those first, because those areas are above the dam site and it was mentioned in the proceedings yesterday by Mr. Campbell that the various tributaries of the Crooked River.

By down below, I did mean toward the mouth of the river and below the Warm Springs River.

Q. Well, have you——

A. Let me—I think I have the answer to your question.

I don't think I have answered your question completely. Let me go on from there. The sports take of those fish is not precisely known, but the data we have indicates that the number is in the general magnitude of 12 or 15 hundred is taken by sportsmen in the Deschutes system annually. We know on some other streams that the sports fishery's take is

(Testimony of Donald R. Johnson.)

but a small per cent of the fish present. For example on the Umpqua River data there indicated that about one fish—one fish was caught for ten escaping, that is in sports fishery.

Q. How did they figure it out?

A. They tagged a number of fish in the lower river and then they checked the percentage of tagged fish at a dam several miles [1307] up the river. The percentage of tags then indicated the total number of tagged fish passing the point of tagging. The sports catch data were obtained by contacting the fishermen, those two figures were the ones I have just mentioned.

Q. What are your actual reports on the number of steelhead caught?

A. The Fish Commission has—Well, I obtained some in conversation with some of the Game Commission personnel. I have it right here, let me see.

A gentleman from Dufur, he and his family would—which I understand are of some 17 persons, took 118 steelheads in the lower Deschutes.

Q. Last year? A. Yes.

Q. Well, what does your Commission or the Game Commission have as a report of the total number of taken at that stream?

A. I pointed out that we do not have precisely that—as a matter of fact anything that I would consider a real and scientifically gathered piece of information on the catch. However, the information obtained from anglers on the system I think is of a general indicator of the take of fish. I do not think it is necessarily precise.

(Testimony of Donald R. Johnson.)

Q. Well, now Mr. Johnson, do you fish?

A. I occasionally do.

Q. Do you have a license? [1308] A. I do.

Q. Ever time you get a license for the last several years, don't they ask you how many fish you have gotten and where you caught them?

A. They must have slipped up on me. Maybe they thought I didn't catch enough to be of interest.

Some years ago I recall submitting in a report of that sort. At the present time they have a different system where they get data from part of the anglers, as I understand it, they pass around little forms of some kind.

Q. For the last few years, haven't they given you a little tag where you tag them on the salmon or steelhead?

A. That is what I was referring to.

Q. I think I got my batch two or three years ago.

A. I think I got my first ones a year ago this last December, that would be about 14 or 15 months ago.

Q. Doesn't that give you a record of the number caught?

A. I suspect that the fish commissioner does not have the data and I suspect that is because of the general lag in obtaining material from the public in analyzing it, it may not be available at this time.

Q. Don't the license agencies, haven't they asked the fishermen for the past several years now about

(Testimony of Donald R. Johnson.)

how many fish they caught, what species and where the caught them when they get their licenses? When you get your license they will ask you about [1309] last year's experience?

A. I think the Game Commission personnel rather than I are best qualified to state what use those data can be made.

Q. All right. Did you attempt to get that information before you made an estimate of 5000 steelhead?

A. I did not and I will tell you why, because my personal opinion is that it is not necessary—the only—the old way of getting it was not necessarily precise than interviewing certain anglers down the river who had fished it consistently.

Q. The new way is to interview them along the river then?

A. No, now, there are various ways. Certainly one of the ways is to contact anglers directly on the river. My own contact was with anglers who had fished the river rather consistently.

Q. When you make observations of the number of fish in the stream, for example, what we were talking about a few minutes ago, how do you distinguish between steelhead and salmon?

A. There is no problem there, Mr. Phillips, because the steelhead spawn all in March April along in there. The salmon are no where around there, no adult salmon. They are still out at sea or perhaps thinking about it, nosing into the Columbia River about that time. There is none around then.

(Testimony of Donald R. Johnson.)

Q. The steelheads stay around, don't they?

A. The steelheads stay in all year?

Q. Yes. [1310]

A. Yes, they stay in until—In the late fall until the following spring and then they spawn.

Q. Sometimes they stay all year, don't they?

A. I have never know them to stay all year, they go back to sea.

Q. Every year?

A. There may be exceptions to that.

Presiding Examiner: Mr. Phillips, we have reached the standard time to recess. If you have only a little more of this witness I would like to go right on.

Mr. Phillips: It is quite agreeable with me to go on. I will try to finish before five.

Presiding Examiner: You would rather do that?

Mr. Phillips: Yes.

Presiding Examiner: We have a good day tomorrow to spend on that.

Mr. Phillips: I would just as soon get moved along. I don't want to get caught in a jam tomorrow. [1311]

Q. Now, with respect to the temperatures on the Deschutes that you gave to us, I would like to know a little more specifically how you take these temperatures.

A. I suggested to Mr. Bowles earlier that it might save time and be a little better if Mr. McKernan discussed the temperatures; he is capable of doing so, and I think it would better serve the general purpose.

(Testimony of Donald R. Johnson.)

Q. Well, did you ever observe or assist in the taking of temperatures?

A. Since you wish to ask that, I have certainly both taken and seen temperatures taken.

Q. All right.

Now, what method do you use?

A. Generally a pocket thermometer is used, and the thermometer is inserted in the flowing surface waters—that is, within one foot depth, in the shade—and the temperatures read.

Q. Only take surface water temperatures, then?

A. In the stream there is very little stratification, and we find it makes very little difference from what point the temperature is taken.

Q. You didn't take any temperatures in the Deschutes that you testified about?

A. I have not taken any that I have testified about. I may have—I have taken some at Shirar's Falls, but I don't believe any other place. [1312]

Q. I think you or Mr. McKernan gave some maximum temperatures on the Deschutes yesterday; was it you or Mr. McKernan?

A. I think it was Mr. McKernan; I'm not sure, myself, but I believe he did mention them.

Q. You also indicated that you didn't know of any mining on the Deschutes River; is that correct?

A. I know in a general way; obviously there must be mines up there, but I don't know where they are.

Q. Well, now you were down to the legislative hearings in 1949, were you not, when we have a bill

(Testimony of Donald R. Johnson.)

up to prohibit them from the Deschutes, which did not get by the legislature?

A. Yes, I was there.

Q. You were up at those hearings?

A. Yes, I was.

Q. Do you remember Mr. Morris Eben being down there, representing the Perlite Mining Company on the Deschutes River below the Pelton site?

A. I do not recall that particular firm; I do recall there was a firm, but that name doesn't seem to be particularly familiar to me.

Q. Well, did you ever visit the Perlite mines up there?

A. I may have seen them alongside the road a time or two; I understand there is some of that up there.

Q. The Fish Commission of Oregon has never approved what has been referred to in this testimony as the Lower Columbia [1313] River Fisheries Program, has it?

Mr. Mason: What was that question, again?

Mr. Phillips: The Fish Commission of Oregon has never approved what is known, what has been referred to here in this proceeding as the Lower Columbia River Fisheries Program.

The Witness: Well——

Mr. Mason: Do you know?

The Witness: He asked me "did they," not if I knew.

It was my understanding that they have approved the Columbia River Fisheries Program.

(Testimony of Donald R. Johnson.)

Q. (By Mr. Phillips): In every detail?

A. That would have to be something that I wouldn't necessarily know.

Q. You wouldn't know.

Now, you tried to establish a fall run up there in the Deschutes, in the Metolius, didn't you?

A. We have.

Q. That was a failure, wasn't it?

A. As far as I know.

Q. How long did you start to establish that run, how long ago?

A. I don't recall. There may be some plantings in the '30's, but I don't recall the exact time.

Q. That was before you built the hatchery, wasn't it? [1314] A. Yes.

Q. Now, you tried to start a blueback run, too, didn't you?

A. The initial blueback run — which I understand from hearsay—I haven't seen, or wasn't there 15 or 20 years ago, obviously—it's origin is in doubt as far as I'm personally concerned.

Some folks claim that it was natural run, and others claim that it was introduced.

But, there was a blueback run, according to all reports, both from inhabitants and from our own staff.

Our own staff members, some of them go back, have seen them go back there in recent years.

Q. Look on page 14 of this report that you drew up: up at the top of the page: didn't you say that in the Metolius itself some 20,000 blueback salmon were planted in 1943 with almost no return?

(Testimony of Donald R. Johnson.)

A. I was referring there at the moment to earlier plantings.

Q. Had you tried some before?

A. Yes, there had been some earlier plantings but there was no return.

Q. Were the '43 plantings, had no return?

A. Well, I believe that there were not more than half a dozen fish; put it that way—there were some blueback; [1315] there were definitely some bluebacks, but definitely only a handful.

I think that would fulfill the requirements of no return.

Q. Do you know where they planted them?

A. No, I don't know for sure. I could make a guess, but I don't know.

Q. They planted them on the Metolius River, didn't they?

A. I believe they were planted at Suttle Lake.

Q. How many times have you been at Suttle Lake? A. Oh, several times.

Q. Don't you remember when they had that rope, when it was stretched off with a rope there with some floaters on it, one half that lake was to be excluded from fishing so that the bluebacks might get a break?

A. That's news to me; you must have been out there a different time than I was.

Q. You don't remember; they took that rope and all the floats out now, haven't they? The bluebacks aren't there anyway.

A. That's your statement; I wouldn't know

(Testimony of Donald R. Johnson.)

whether they have taken it out or not. I haven't seen it.

Q. Well, how recently have you been up to Suttle Lake, then?

A. Oh, I've been up there, as I recall, each year for the last 2 or 3 years. [1316]

Q. Well, they don't have any excluded area in there now, have they?

A. No, but you were putting words in my mouth that they had taken it out, and I didn't know that they had it in.

Presiding Examiner: Maybe we ought to have some testimony from Mr. Phillips.

Mr. Phillips: I am about to start in pretty soon.

Mr. Higgs: I was going to ask the Examiner to swear him. He's been doing a lot of testifying.

Q. (By Mr. Phillips): Well, your annual report shows that you planted some more blueback up there in '49; didn't you, in Suttle Lake?

A. Yes, I believe we planted some.

Q. Still trying them? A. Yep.

Q. Well, now, you are trying spring chinook on the Metolius; is that right?

A. We are using native stock there.

Q. How many eggs does a female lay? Chinook?

A. From hearsay, from data which I may not remember precisely, the Metolius spring chinook lay about 4,000 eggs.

Q. Is that hearsay with you?

A. I haven't gone and counted the eggs, so obviously it's hearsay.

(Testimony of Donald R. Johnson.)

Q. Haven't you helped strip fish? [1317]

A. I have, but not in the Metolius.

Q. Well, I mean spring chinook; they have about the same number, whether it's in the Metolius or not.

A. The number may vary from one place to another; you wanted to know about the Metolius and I told you.

Q. Well, I will ask you, then: does that figure vary with various streams, as to the number of eggs? A. To some extent.

Q. How much does it vary?

A. With the chinook salmon, I believe that your number on the Metolius would be about as low as I've heard of quote on chinook; it goes up to somewhat in excess of 5,000.

Q. Why would it be low on the Metolius?

A. The Metolius chinook are somewhat smaller; it's a racial characteristic, apparently.

Q. The spring chinook on the Metolius are smaller than the spring chinook some other place?

A. I think so.

Q. Are they an inferior fish?

A. By no means; in fact, they're superior.

Q. How do you suppose they survive the temperatures that Mr. McKernan testified about yesterday, on the Deschutes River, those high temperatures?

A. They're passing through. I believe that you will recall that the temperatures in the Metolius itself is more [1318] suitable to salmon.

(Testimony of Donald R. Johnson.)

Q. Wouldn't it be a fair statement, Mr. Johnson, to say that the fact that you got 51 females up there last year might be attributed to the fact that is not a good stream because of the temperatures?

A. No, I don't think so.

The temperature becomes a problem—tends to occur later than the time that the chinooks are holding right in the main Deschutes, there.

Q. Well, tell us, Mr. Johnson, why you think it's a wise thing to attempt to establish runs in a stream where there's only 51 females last year, especially where the fish has temperamental qualities, apparently, as has been testified here, as the spring chinook, and which all of the authentic biologists apparently agree is one of the most difficult fish to propagate, unofficially?

A. In the first place, the number of fish in the Metolius is some thousand, as I estimated previously, and not necessarily the number that were right at the racks.

Secondly, I think there is considerable merit in supplementing the run with hatchery operation. I do not think they would be wise to handle all the fish, particularly in this, nor any other stream that I know of, with their present knowledge.

Q. And you still think it's a good bet even though fall chinook attempts failed and bluebacks have failed so far? [1319]

A. I don't see the two are necessarily related; there is a spring chinook run there which we are taking some measures to increase.

(Testimony of Donald R. Johnson.)

The fall chinook run need not necessarily have anything to do with the spring chinook.

Q. What is the size of your hatchery up there?

A. I do not recall.

Q. Do you know anything about the hatchery?

A. I've seen it.

Q. Do you know what capacity it is in eggs?

A. I don't recall, no.

I might point out——

Mr. Higgs: Just a minute, Mr. Johnson.

I understand there was an agreement before cross examination that they would cross examine Mr. Johnson with respect to certain matters in the statement and Mr. McKernan with respect to others.

Mr. McKernan's understanding is that they would cross examine him about this hatchery method.

Now, if that's the case, I object to any further cross examination of this witness concerning hatcheries, on the ground that it is not proper cross examination.

Presiding Examiner: I did try to get the witness to delineate the portions of the matter they had prepared, but they then said they were pretty much responsible for the whole thing, [1320] both of them, and that just about throws it back to where it was, again.

The Witness: I just pointed out, Mr. Examiner, that it would be better and save time if Mr. McKernan would answer this problem, before we began it.

Presiding Examiner: If you are asked a ques-

(Testimony of Donald R. Johnson.)

tion about hatcheries and you don't know anything about it, and you can't testify, just say "I don't know," and that will be the end of that; they can't pursue any further.

The Witness: I see. [1321]

Q. Now, Mr. McKernan,——

A. You have the wrong man, Mr. Phillips.

Q. I do have the wrong man. I guess it is getting late in the day.

Mr. Johnson, does the Fish Commission claim that it has jurisdiction over the salmon in the Deschutes and the Metolius Rivers in spite of the fact that it flows in the reservation of the Warm Springs Reservation and gives them according to what has been given here as a treaty exclusive right of the fish.

Mr. Higgs: Now, just a minute. Don't answer the question until after I object to it.

The Witness: I will not.

Mr. Higgs: I objection to that for the reason that it is not proper cross examination and calls for the conclusion and opinion of the witness and calls for an interpretation of the law of the State of Oregon which determines the jurisdiction of the Fish Commission and the Game Commission has and also what jurisdiction of what the Indians, if any, have.

Mr. Phillips: All I asked him what that if he knew whether or not they had jurisdiction over these fish.

Mr. Higgs: I don't think I heard your question.

(Testimony of Donald R. Johnson.)

Mr. Phillips: All I was asking Mr. Johnson was whether or not he knew whether the Commission was asserting jurisdiction over the fish on the Deschutes and the Metolius River which bordered on the Indian Reservation. [1322]

Mr. Higgs: Whether they assumed jurisdiction?

Mr. Phillips: Whether they are asserting jurisdiction.

Presiding Examiner: If he knows he can answer the question.

Mr. Phillips: If he knows he can answer it.

A. Personally I am not qualified to answer.

Q. (By Mr. Phillips): You are not qualified to answer that, all right.

Will you look at page 11 of your report. This is part of what you made up, isn't it?

A. If you are referring to the section of artificial propagation that was Mr. McKernan's.

Q. What?

A. That was largely Mr. McKernans.

Mr. Higgs: Yes, he stated this morning. I have a notation on the margin that the first paragraph under the heading of artificial propagation must be testified by Mr. McKernan.

Mr. Phillips: All right.

Q. Could you give us a figure on what per cent of the Columbia River Salmon in the Deschutes River——

Mr. Higgs: That calls for a yes or no.

A. I have a draft on that, but I am cold on it.

Q. (By Mr. Phillips): Let me ask you this: Are

(Testimony of Donald R. Johnson.)

you familiar with the Wildlife Report Appendix P of Fish and Wildlife, Corps of Engineers, Department of the Army, Northwest Pacific Division, October 1, 1948? [1323]

A. Well, that is probably calling for an involved answer.

Does that say anything about fish refuge? I think it would be about page 58.

Q. Well, are you familiar with it?

A. I am somewhat familiar with it.

Q. The figure they give are 87,000 fish crossing the Bonneville dam. Is that about right as an average per year?

A. You are referring to what run?

Q. Chinook salmon runs.

Presiding Examiner: Do you want to look at the publication?

The Witness: I had better look at it so I will know. I believe that although I am not sure that there definition of a spring run may not be identical too. In some cases it is not entirely a matter of who is right and who is wrong. At the point of dividing between spring and fall runs, there might be some arbitrariness there.

Q. You mean the runs pile up at Bonneville a little bit?

A. There is some delay at Bonneville, but I did not mean what he inferred. As to whether this spring run includes the period January through July which is more or less for some people, or January through May or June, I have forgotten. I think

(Testimony of Donald R. Johnson.)

it is May, I believe, one or the other, I wouldn't know.

I believe that the counts indicated are possibly correct.

Q. They are about right. What percentage of that then of [1324] that run going over Bonneville of 87,000 fish would go into the Deschutes River?

A. You know, I have some tagging information which is interesting. I do not feel it proves any point, but it is of some interest relative to this percentage and I will come back to that after your question directly.

Q. I'll bring you back.

A. All right. On the 21st of June, 1948, 98 fish were tagged at Bonneville. A rather small percentage of these fish are seen in some lakes and the total recovery from the fish was 3. One of those went to the Metolius. The movement over the—One out of three of the recoveries—If there was a large movement of untagged fish and other things were equal on recoveries which I concede they are not, but in general terms there, that would indicate that the run at that time might be one third of those at Bonneville.

I have not pointed this out as a means for estimating runs in that region, but it indicates the fact that appreciable proportions of the runs may enter the Deschutes system out of some of these runs.

Q. How many fish were tagged?

A. I mentioned that. 98.

Q. You mean one out of 98, not one out of three.

(Testimony of Donald R. Johnson.)

A. Well, stop and think about that. We know that a lot of the tagged fish reached various tributaries up and down the tributaries. [1325] There are various ways the fish can be recovered in like fashion as in the Deschutes and one out of the three recovered was in the Deschutes.

Q. Where did they catch the other two?

A. I don't recall, but I will make a guess which I think is correct, in the Salmon River in Idaho.

Q. Do you have a record of that?

A. Certainly we have a record of it, but I don't have it here.

Q. Did you ever see them?

A. We have a number of returns other than that, Mr. Phillips.

Q. Do you know where the other two went?

A. As I said, my guess was the Salmon River in Idaho.

Q. Where was the third one?

A. The Metolius.

Mr. Higgs: I didn't hear the answer.

The Witness: The Metolius.

Q. (By Mr. Phillips): I didn't get the first one then.

A. Two in the Salmon River and one in the Metolius.

Q. Two in the Salmon River and one in the Metolius River. I see. The Salmon is a tributary of the Snake, isn't it?

A. I believe that the data has some interest in it and it indicates that we got a total of three tagged back. [1326]

(Testimony of Donald R. Johnson.)

Q. Out of 98 you got 3?

A. Three bagged in the Metolius of the total of that. The total of the recovery was for these dates of tagging, which involved the Metolius, let's make it clear, the total number of recoveries on tributaries were 18. That is three out of 18.

Q. Maybe I am dumb. You tagged how many fish altogether?

A. For these three days which fish were involved that were in the Metolius, I haven't given you that yet, and I would be glad to do so, 322 were according to my memory.

Q. 322 fish were tagged?

A. Yes. As I pointed out previously only a small proportion were screened and only a small proportion were therefore recovered. 18 were recovered in various tributaries of the Columbia River of which 3 were in the Metolius.

Q. I see. These were tagged at Bonneville?

A. At Bonneville.

Q. What year? A. 1948. [1327]

* * * * *

Q. (By Mr. Phillips): Mr. Johnson, last evening we were discussing the matter of tagging at Bonneville Dam, and as I understand your figures, you tagged 322 salmon on the 21st of June, 1948?

A. No, you—if you have that inference, you are mistaken. I am going to re-add them to make sure my statement is correct: 322 on June 21st, 22nd, and July 1st, the additive total.

Q. Oh, I see; there was 322 fish tagged in 1948; is that correct?

(Testimony of Donald R. Johnson.)

A. On these three days.

Q. On those three days. A. Yes.

Q. Of which you get a recovery of 3 on the Deschutes River? A. Yes, and the Metolius.

Q. And that included the whole Deschutes?

A. Yes, the waters in the Deschutes.

Q. That's a 1 per cent return, then?

A. That is 1/6, I believe we established yesterday, 1/6 of the return, of the returns to tributaries, 1/6.

Q. One per cent of the fish that went over, one per cent of the fish that were tagged?

A. One per cent of the fish that were tagged, were seen and recovered, were 1/6 of the recoveries made everywhere above Bonneville Dam on tributaries, were made in the Metolius.

Q. Now go back to the other question that I asked you, which you did not answer in your testimony: what percentage, in your estimation, of the 87,000 fish that were counted in 19—the average for the last 10 years, according to the Fish and Wildlife Service report, 87,000 fish—what percentage of those fish go in the Deschutes?

A. First—I'll be glad to answer that—first, I think I should point out that individuals living on the Metolius have indicated to members of the Fish Commission's staff that considerable numbers were there within the last 10 years. The numbers we have estimated for the more recent period, which is, of course, not quite comparable, would be in the general magnitude of 5,000 spring chinooks.

(Testimony of Donald R. Johnson.)

I have not concerned myself with some variations, here.

I might point out that, as I said yesterday, the survey that [1331] has been made does not cover complete life cycles of the salmon, and so even that, of course, is subject fluctuations, up and down.

Q. Is that your complete answer?

A. No; you asked what percentage, and I'll go on.

That would be 5,000, relative to 87,000 over Bonneville.

Let me point out that the 87,000 includes some chinook that were taken before they entered the Deschutes, by the fishery above Bonneville; so, the fish destined to the Deschutes would be in excess of that.

Q. Excess of what?

A. Excess of the relationship, 5,000 divided by 87,000.

Q. Well, now, can you get down to answering the question, then: the per cent of 87,000 that went over Bonneville, what per cent of that went into the Deschutes?

Mr. Mason: Did you ask him to compute the percentage?

Mr. Phillips: No, I don't think he can compute it. I am asking him for his estimate, percentage estimate.

A. I do not recall precisely the takes above Bonneville; I can make a guess, from memory of the takes, but I do not recall what they were during

(Testimony of Donald R. Johnson.)

that period. I would guess 6 or 7, 8 thousand, somewhere in that neighborhood.

Q. Well, now, after the 3rd red herring here across the trail, can you give us the percentage of the 87,000 that enters the Deschutes? [1332]

A. I think I made that clear—and I do not particularly like your allusion to a red herring—the percentage of 5,000 divided by 87,000 does not indicate the percentage of fish going into the Deschutes, because the 87,000 includes fish that are headed for the Deschutes that do not get there because they are caught and harvested.

Q. Well, they have all been caught and harvested there for a good many years, haven't they?

A. You mean between Bonneville and Celilo Falls?

Q. Yes.

A. There is no fishery immediately above Bonneville, but there is a fishery in the vicinity of The Dalles for a good many years, yes.

Q. There has been a fishery right up there where —the Bonneville pool flooded out one of them didn't it?

A. But there is not one at the present time, because of the regulations; that's what I want to make clear.

Q. Well, can you give us the percentage, then?

A. I gave you my best guess.

Q. Well, what per cent is your best guess?

A. I——

Presiding Examiner: Mr. Phillips, if this wit-

(Testimony of Donald R. Johnson.)

ness hasn't ever computed a percentage and hasn't got one worked out, he can not be asked on cross examination to create a percentage for you. [1333]

Mr. Phillips: Well, he's a fish estimator, according to his testimony. He has attempted to use various ratios in the Willamette River, in the Deschutes River, in the Metolius River, premised them upon certain fish at certain places in certain numbers. I am asking him to take the number now at Bonneville, to see what his estimates are on how many of those, percentagewise, go into the Deschutes; if he is an estimator, he can do that.

The Witness: I think I am the best judge of that, and I do not have the data right at hand.

Q. (By Mr. Phillips): You don't care to give a percentage on it, then?

A. No, I've given you the best data I can.

Q. You don't think you are qualified to give a percentage?

A. I think I am qualified, if I have time to go and look up the data, yes.

Q. Now, go back to your Willamette percentage there: you say 8 per cent, or a multiplier of 8, is what you used to determine the number of salmon in the Willamette and its tributaries, in order to determine the number of the fish in the stream.

Am I right on that?

A. We counted the fish over Willamette Falls to find out the number of fish that entered the Willamette system. [1334]

(Testimony of Donald R. Johnson.)

Q. And then what do you do upstream on that one?

A. We have both the take in our rack and the stream surveys.

Q. How many tributaries are there on the Willamette?

A. There are four major ones that have spring chinook salmon.

Q. And are your racks on the major tributaries? A. They are.

Q. Clear across? A. Yes.

Q. And how many racks do you have up there?

A. We have four.

Q. Four racks?

And on what are those major tributaries?

A. The Willamette, the McKenzie, North and South Santiam.

Q. Are they above or below any sub-tributaries of the Willamette?

A. There are some sub-tributaries of the tributaries.

Q. In which salmon go? A. Yes.

Q. What allowance do you make for that?

A. The same type of allowance that I made for reported fish in sub-tributaries on the Metolius.

Q. Well, move over to the Deschutes: what percentage of the fish that go into the Deschutes River —or numbers, if [1335] that's better for you—go up the Crooked River, chinook salmon?

A. I do not know, precisely; I do know that there are fish there.

(Testimony of Donald R. Johnson.)

Q. Did you ever make any studies there?

A. Some of my staff members have been there.

Q. Have they ever made any counts?

A. No; they have not seen any chinooks, themselves; the members of the Game Commission staff have found downstream migrants a number of miles above the mouth of the Crooked River, chinook salmon.

Q. Your staff has never found any up there?

A. My staff has never found any up there.

Q. How often have they worked in there?

A. Not too often; not too often. I don't know, precisely, but certainly very few times.

Q. What work have you done on the Deschutes above the confluence of the Metolius?

A. My staff members have visited Steelhead Falls.

Q. Did they see any salmon?

A. They did not.

Q. How high is Steelhead Falls?

A. I do not recall.

Q. You have never seen it? A. No. [1336]

Q. Practically all the salmon above the headwaters of the Deschutes would be going into the Metolius then?

A. Yes, that is indicated.

Q. That is best ground then?

A. Above the Pelton Dam site?

Q. Yes. A. Yes.

Q. Now, if you will take your statement, I have a few questions to ask you with respect to that.

(Testimony of Donald R. Johnson)

On the first page you indicate that: "Of the 55,000 square miles of Oregon in the Columbia Basin some 10,500 lie in the Deschutes system." How is that computed?

A. I don't recall where I obtained that. I obtained it from public source, perhaps either the Army Engineers publication or the water supply papers.

Q. That is not your own then? A. No.

Q. You made no computations? A. No.

Q. Of that 10,500 square miles then, does it include the area above the Deschutes and the irrigation area?

A. I certainly think so. That is an inclusion of the entire watershed.

Q. Including the Crooked River?

A. Yes. [1337]

Q. And the main stem of the Deschutes?

A. Yes.

Q. On page 2, the end of the first paragraph, you indicate "Spring chinook salmon and steelhead trout were once to be found in all of these accessible areas * * *" You named them as Squaw Creek, Shitike Creek, Metolius, Crooked and Warm Springs Rivers.

What basis did you have for making the statement that they were once to be found?

A. The reports of other agencies, perhaps—Let's see if I can find the source for that.

May I leave the stand for a minute and obtain some material over here adjacent to me?

(Testimony of Donald R. Johnson.)

Presiding Examiner: Yes.

A. Squaw Creek, which is the first one named here on page 2 the data obtainable by the Fish and Wildlife Service on June 22, 1942, as mentioned in their survey of the Columbia River and its tributaries, Part 5, Special Scientific Report, Fishery, No. 38. It says that it was reported that steelhead trout continued to enter the stream up to a few years ago but there were no important salmon entering the stream of Squaw Creek.

Shitike Creek, says it is not complete in this regard, considerable spawning areas of salmon were noted both below and above the falls, referring to the falls?

Q. That is Sherar's Falls?

A. No, that is Shitike Creek, the falls on the tributary. [1338]

Q. The falls on Shitike Creek?

A. Yes.

Our own staff members indicated in their report that—something to the effect regarding the fish in the Shitike Creek, I believe. They have not found any themselves at all in recent years.

Referring to an area on Shitike Creek called Peter's Pasture, the comment was made that various native have seen chinook and steelhead's at Peter's Pasture in recent years.

Q. What do you mean by natives?

A. I would assume it meant the Indians there.

Q. Indians?

(Testimony of Donald R. Johnson.)

A. Who by the way cooperated wholeheartedly in the survey.

You wanted the Metolius, the comment in the aforementioned survey of the Columbia River and its tributaries Part 5, this is the most important chinook salmon and steelhead trout stream in the entire Deschutes River system and the Crooked River——

Q. Does that mean in their opinion that they have more in the Metolius than any part of the stream?

A. I couldn't very well interpret it any more than you could.

Q. That is what they said?

A. You can make the same interpretation of it as I could on that statement.

Regarding the Crooked River, I can quote the pages, if this [1339] important to the testimony, Mr. Examiner. Is that desirable?

Presiding Examiner: If Mr. Phillips wants it he can ask for it.

Q. (By Mr. Phillips): I would like the source.

A. Do you wish the pages?

Q. Give us the page number.

A. On page 12 referring to the Crooked River. It is the largest tributary of the Deschutes River. Runs of chinook salmon, and trout formerly entered the stream.

Q. Does it say when?

A. It does not say when, as far as I can see. I should for completeness read the rest of it. No

(Testimony of Donald R. Johnson.)

salmon and only an occasional steelhead now are reported.

Presiding Examiner: Did you mention the date of that report?

The Witness: Let's see. It is not here in the front —August, 1950.

Presiding Examiner: Thank you.

The Witness: Washington, D. C., is the——

The third place is the Warm Springs River, or the fifth, or whatever it is. Referring to the Warm Springs River, the main river has suitable spawning areas for a number of—for a large number of salmon and steelhead trout and is one of the two important salmon streams in the Deschutes River system. [1340]

Q. (By Mr. Phillips): Doesn't that say anything about seeing any?

Mr. Higgs: What?

Mr. Phillips: About seeing any salmon?

The Witness: They just said it was suitable. They do not.

Q. (By Mr. Phillips): Now in your second paragraph of page 2, you indicate in the first sentence that the * * * "that the rapid development of the Deschutes Basin during the past half century has had an adverse effect upon the fishery resources."

What is that premised upon?

A. Diversions. There are let's see—plus the heavy diversions from up river which reduced the flow and tend to affect the temperature below.

(Testimony of Donald R. Johnson.)

Let me point out an example, Shitike Creek. Less than a mile above the mouth of the creek there is a small dam for the diversion of water into the nearby mill pond so a large log has been placed across the stream and a few boards nailed to it to divert the water. It appeared to be passable, but proved—improvements needed to be made. Two miles further upstream there is another small makeshift diversion dam which may block—balk salmon at the present water level.

Four miles above the mouth there is a wooden diversion dam which diverts drinking water for the agency and the sawmill. It is built in one of the channels formed by a small island and there [1341] is a similar dam about seventy-five yards down stream. Approximately two-thirds of the flow passes over the dam, the other third of the flow is in the right hand channel which appears to be rather shallow and there is no fish navigation in the water.

The dam spillway is 15 feet wide and drops two and a half feet to an apron which extends down stream about ten feet. The water flows over the apron rapidly and makes it impossible for an unstream migrant to jump over the dam.

Q. Did your commission approve those dams?

A. I wouldn't be in a position to know about that. I don't know.

Now let me mention the Crooked River, which I believe is—There are five large diversions near the town of Prineville, Oregon, and numerous small ones in the 80-mile section between Prineville and

(Testimony of Donald R. Johnson.)

the headwater stream. Because of the general low stream flows, none of the dam in connection with these diversions will be passable during the low water stages. Sometimes they are close to a deep canyon and conditions for salmon are no better here than in the upper section.

Mr. Mason: Did you say Prineville?

The Witness: Yes, P-r-i-n-e-v-i-l-l-e.

Squaw Creek enters the Deschutes River about four miles below Steelhead Falls. There are ten dams and diversions in the creek above the town of Sisters, Oregon. Some of the diversions take the entire flow leaving it for three miles—for a three-mile section [1342] near Sisters completely dry.

I understand that some of the lower sections is watered for some 20 odd miles.

Presiding Examiner: Please slow down.

The Witness: I will try to do that.

I think those are the examples of the effect of diversions on the streams.

Q. (By Mr. Phillips): In other words, I then gather from what has been done in the past half century that all of these things combined together have made the Deschutes Basin a very poor salmon stream, I take it, is that right?

A. No, I do not think that is so.

Q. Let's go down to another sentence on your report here, that same second paragraph there where you state: * * * "Likewise the time to balance the

(Testimony of Donald R. Johnson.)

development and use of resources so that one is not prosecuted without regard for another is now."

Isn't that argumentative?

Mr. Higgs: I don't think that is proper cross examination. It speaks for itself whether it is argumentative or not.

Mr. Phillips: He has given a statement here which is as I understood supposed to be fact.

Mr. Higgs: Well, if it isn't you can argue that in your brief.

Mr. Phillips: I want to find out if he is basing that on fact or whether that is an argument. [1343]

Mr. Higgs: I object to it as being improper cross examination.

Presiding Examiner: There have been many statements in this report as well as some of the others that are far from being statements of fact and don't even pretend to be such.

Q. (By Mr. Phillips): Which was this intended for?

Mr. Higgs: Which of what?

Q. (By Mr. Phillips): Is this intended to be argument or fact?

A. I think that——

Mr. Higgs: If you know.

A. Well, I think it is rather clearly agreed by all parties in this region that that is true. I believe that it has been indicated by public and private sentiment.

Q. (By Mr. Phillips): Do you mean that that statement is true? A. Yes.

(Testimony of Donald R. Johnson.)

Q. All right, now let me ask you, so far as you know, has your Commission ever objected to a dam on the Deschutes on the Columbia River Power Project in 1924?

A. I am not sure they even knew about it at that time.

Q. You don't know the statutes on that?

A. No, no, I am not sure they knew about it at that time.

Q. You don't know that the 1921 statute required them to [1344] get permission of your Commission?

Mr. Higgs: That is argumentative. It is a matter of law.

Presiding Examiner: The objection is sustained.

Mr. Phillips: He works for the Commission.

Mr. Higgs: He is no lawyer.

Q. (By Mr. Phillips): Do you know anything about the state laws of Oregon?

Mr. Higgs: I don't think that is proper cross examination.

Presiding Examiner: It is not proper cross examination as far as the law is concerned. You will have to argue the law from the law books.

Q. (By Mr. Phillips): Go over to page five of your statement you refer to the Indian legend about the Metolius River. Where did you get the Indian legend? A. I don't recall.

Q. Did you get it out of another book?

Mr. Higgs: He said he didn't recall. I submit that is his answer.

(Testimony of Donald R. Johnson.)

Q. (By Mr. Phillips): You must have based it upon something to put it in here didn't you?

A. Yes, I undoubtedly did. I said that I did not recall and it is true.

Q. You didn't get it from any of the natives, did you? [1345]

Mr. Higgs: I object to that. He said he didn't recall.

A. I did not.

Mr. Higgs: Wait a minute.

Mr. Phillips: I am trying to refresh his memory a little bit, Mr. Examiner. The statement is as we are told so that makes it clearly hearsay as far as he is concerned. If he was to find out where that hearsay arose.

I am trying to find out where he got the legend.

Mr. Higgs: I submit that he has answered the question when he said that he don't recall. That is his answer to it.

Presiding Examiner: Just a moment, please, Mr. Witness, did you write this particular statement in this report?

The Witness: I did.

Presiding Examiner: Who told you that the name Metolius means in the Indian language "the river of stinking fish."

The Witness: I don't recall. It is one of the things that I just don't remember who told me.

Presiding Examiner: I think that is about as far as you can go, Mr. Phillips.

Mr. Phillips: I move to strike the sentence.

(Testimony of Donald R. Johnson.)

Mr. Higgs: May I ask the witness a question on that?

Do you know whether you have been told, this sentence we are talking about, whether you were told that by more than one person?

The Witness: I believe so. 1346]

Mr. Mason: You don't know whether you heard it from more than one or not?

The Witness: I believe I heard it from members of our staff. I am not sure about that, so I didn't want to make that statement. I believe I have.

Q. (By Mr. Phillips): Let me ask you this then, Mr. Johnson, have you heard that it refers to stinking white fish?

A. I have heard no reference to that at all.

Q. You have never heard of the stinking white fish? A. No, I haven't.

Presiding Examiner: Mr. Phillips, I am going to defer ruling on your motion until after the cross examination of Mr. McKernan. It may be that we can clear this up.

Mr. Phillips: All right.

Q. (By Mr. Phillips): You referred to Mr. Foster and you indicated that: "* * * I am inclined to believe under * * *" That should be "* * * Who I am inclined to believe understands fish * * *" Where did you get the indication that he would understand fish?

A. You will note that is quoted from a letter and I have for obvious reasons talked to Mr. Foster. Mr. French of our staff has had years of expe-

(Testimony of Donald R. Johnson.)

rience with salmon and I should feel that he would be qualified to evaluate in a general way the comments of a lay person. [1347]

Q. Where is Mr. French?

A. I do not know where he is today.

Q. Is he on the staff?

A. I beg your pardon.

Q. Is he on the Oregon Fish Commission?

A. Yes.

Q. Who is Mr. Mitchell?

A. At the present time he is a consultant of the Fish Commission. He has retired as an active member and is on part time service.

Q. He is really a very experienced fish man, isn't he?

A. He has had years in fishery business.

Q. He is consultant to your Commission?

A. Primarily on the problems such as McNary Dam and so forth in recent years.

Q. He did not assist at all in any way in making this statement, did he?

A. The letter was written to him by Mr. French.

Q. Outside of this letter addressed to him, he did not assist you in making the whole report here that you put in?

A. He advised me on certain phases of it.

Q. Certain phases? A. Yes.

Q. Not all phases? A. No. [1348]

Q. Down at the bottom of page six, you indicate that there is no convenient place for counting mi-

(Testimony of Donald R. Johnson.)

gratory adults such as Bonneville Dam and Willamette Falls exists on the Deschutes.

Do you know how much the Commission spends for research in a year?

A. I certainly should. I have forgotten.

Q. Maybe it is here, so we will see.

This Exhibit No. 2 shows that your Commission in 1950, the fiscal year ending June 30, 1950, spent $121,854.94. Wouldn't you think in order to count the fish in the Deschutes River, you could throw a rack across that river and put a counting bar and actually determine how many fish are in there and what kinds?

A. I will answer that and elaborate on it. I believe it is probably possible. I have forgotten the precise flows, I would be glad to have them reviewed for me. Eight thousand odd feet, I believe it was, but we have a tributary involving greater or less problems in many places in the State of Oregon. There just isn't manpower or money in this $121,000 to count all the salmon plus take care of other problems we have in other fisheries.

Q. Well, now were you here a week ago when Mr. Veatch made this statement to the Commission?

A. I was not here when he was under direct examination. I heard a portion of his cross examination.

Q. Do you know whether or not these figures were right?

Presiding Examiner: Mr. Witness, are you in any way responsible [1349] or have anything to do

(Testimony of Donald R. Johnson.)

with the fiscal operations of the Fish Commission?

The Witness: To this extent. that it is partly in my province ot determine what projects are undertaken and how they are prosecuted.

Presiding Examiner: But the allocation of money for any particular project is outside your province, is that right?

The Witness: I would say that it was.

Q. (By Mr. Phillips): Are you familiar with the project then in a general way of the hatchery in the Metolius?

A. I am not as familiar as I might be and particuiarly so because Mr. McKernan takes care of that and I did not take the opportunity to get to review it.

Q. You are not familiar with how much money they spent there or how much they contemplate spending? A. I do not recall.

Q. It is a sizeable amount, isn't it?

A. I would rather not say because I don't recall.

Q. Do they contemplate expansion?

Mr. Higgs: No.

A. I believe they do.

Q. (By Mr. Phillips): Well, now, wouldn't you think it would be a wise thing to do before going into a large capital outlay for the operating [1350] expense, to determine how many salmon there are in that river before you did that?

Mr. Bowles: I object to that question, Mr. Examiner, that it cails for a conclusion of the witness,

(Testimony of Donald R. Johnson.)

in the matter of policy determination which are not purely within the province of this witness.

Mr. Phillips: I am not pinning the Commission down. I am asking for his opinion.

Mr. Higgs: I think the further objection, Mr. Examiner, it is highly conjectural.

Presiding Examiner: I think the question can be answered if it is stated in a hypothetical way so that he can approach it.

Q. (By Mr. Phillips): I will put it in a hypothetical way.

Presiding Examiner: I think you had better put it that way since you are inquiring as to what is wise policy.

Q. Assuming, Mr. Johnson, that you have already expended $73,000 in capital expenditures on the Metolius River Hatchery and the Government has allotted an additional $220,000 and that this money is now being expended according to the testimony of Mr. Veatch, one week ago today, and with that capital outlay and the amount of money you spend each year for research, which in the year ending 1950, amounted to $121,854.94, and among your activities you go to the extent of tagging salmon which go over Bonneville Dam and you also tag salmon at sea, in conjunction with the other states, would you not think that it would be a wise [1351] thing to do to put a rack across the river like the Deschutes and count the number of salmon before you make extensive capital expenditures in the Upper Metolius River?

(Testimony of Donald R. Johnson.)

Mr. Higgs: I make the same objection, not proper hypothetical question. It has missed a great many elements in this case.

Presiding Examiner: This witness is a professional man.

Mr. Higgs: I realize that, Mr. Examiner.

Presiding Examiner: He is quite able to take care of himself so I am going to let him answer.

Mr. Higgs: All right, if you know.

Mr. Mason: It is a hard thing to do.

Mr. Higgs: Yes, it is, He asked him if he had an opinion and that is not hard to say yes or no to that.

Presiding Examiner: I don't think he asked him that. I will ask the reporter to read the question back.

A. Whether it is wise to do those things?

Q. I asked for your opinion.

A. I do not think that it is necessary to put a rack on every stream in order to determine the population there. I think that it varies with the desirability of these tributaries with conditions. I do not think it is always necessary.

Q. Now, to cover any streams your answer should be confined to the Deschutes River and the Pelton Site.

Mr. Higgs: It is the same hypothetical question?

Mr. Phillips: The same hypothetical question.

A. You are bordering on policy matters which are out of my scope. I think because of that, that the determination of whether or not a stream should be racked it not and has not been within my pro-

(Testimony of Donald R. Johnson.)

vince, but I think I should not be required to answer that.

Q. Well, I am looking for an answer first.

Mr. Higgs: I object to that. If it is his opinion on policy question it has nothing to do with the determining of the policy of the fish commission.

Presiding Examiner: I think that is true. There is no policy involved in the counting of fish. He is the man that does it.

Mr. Higgs: Whether they should be counted is another particular and involves policy.

Presiding Examiner: I will not sustain the objection. If you can answer the question as a general matter of whether proper game management requires that all than can be found out about the fishery resources should be found out before any capital expenditure is made you may answer. That is the import of the question.

The Witness: Surely. Let me point out. Perhaps I will answer it this way: That, when it known there are fish in the stream in numbers the hatchery has been established in the past. I question whether any great proportion of the hatcheries established in the Pacific Coast have had racks associated with the counting of fish in absolute numbers prior to that time.

Presiding Examiner: Does that answer your question? [1353]

Q. You thing there are no new possibilities in the interest of efficiency?

A. I do not see that it has too much of a bearing

(Testimony of Donald R. Johnson.)

on it. We do not attempt to take all the fish in the stream as a general policy. Therefore, the precise number, it seems to me is not absolutely pertinent to the matter.

Q. You would have to get enough for seed to plant, wouldn't you?

A. We would have to get enough for initial seed in operations.

Q. You would have to get enough to keep the plant running to capacity, wouldn't you?

A. This business about plant capacity is a thing in the province of Mr. McKernan.

Q. On the question of policy in connection with this question. Do you make recommendations to your superiors?

A. On certain occasions certainly.

Q. Who are your superiors?

A. Mr. McKernan, Mr. Snomela.

Q. Do they in turn make recommendations to the Commission? A. Yes.

Q. When you think there is some new project coming along that you will find that there is some efficient way to do it, don't you make recommendations to them on it? A. Quite often. [1354]

Q. This application is or has been pending since 1949 and we have had several other hearings around the state on it, haven't we?

A. There have been a number of problems pending since that time and before.

I said earlier that the financial condition of the

(Testimony of Donald R. Johnson.)

State does not permit the exacting count of fish on all the streams.

Q. Let me ask you that then: Is this a minor project in your program, the Deschutes Project?

A. No.

Q. It is a major project?

A. I would call it a major project.

Q. Then as a major project you wouldn't go to the extent of having—counting fish on the Deschutes?

Mr. Higgs: I object, Mr. Examiner.

Presiding Examiner: I think the subject has been covered pretty thoroughly.

Mr. Phillips: Possibly so.

Presiding Examiner: At least as much as you are going to get from this witness. [1355]

Mr. Phillips: I think that's all I have on the pages that you have, on your part of that exhibit 31.

Presiding Examiner: Mr. Phillips, does that cover the additional direct oral testimony that he gave, also, in addition to the printed statement?

Mr. Phillips: That's all; I covered that first, before I got into the book.

Presiding Examiner: I see.

We will now have a five minute recess.

(Short recess.)

Presiding Examiner: Please come to order.

Before we begin with cross examination by the Staff, I wish to state for the record that during the recess I have generally acquainted counsel here with the Commission's rule, 1.30, which provides

(Testimony of Donald R. Johnson.)

for the waiver of the intermediate decision procedure in certain cases and under certain conditions, which I will not discuss now; generally, it involves a submission to the Commission directly of the record of hearing with or without suggested findings of fact and conclusions of law by the parties.

It is based primarily upon concurrence of all counsel, in such procedure; it is a method of saving time where a decision is required in the public interest at the earliest possible time.

There are certain formalities which must be followed in connection with the presentation of a motion for such waiver; the motion may be made at any time during the hearing, and within [1356] five days after the close of the hearing. Of course, if it is made after the close of the hearing it must be made in writing and submitted to the Commission directly; if it is made during the hearing, it may be made orally on the record and the Examiner then forward the request of counsel to the Commission.

I have asked that counsel give consideration to whether they desire to ask for such waiver in this case, and have given them some time to consider it and advise the Examiner, shortly after the noon day recess as to their position on the matter.

Mr. Mason, you may proceed.

Q. (By Mr. Mason): As a matter of reference, I want to tie this question back to page 1308 of the transcript, and this question is to correct an error that appears there to be:

Mr. Johnson, you stated yesterday that you esti-

(Testimony of Donald R. Johnson.)

mated the number of fish at some point on the Umpqua River by tagging fish and then observing at a counting station farther up stream the ratio of tagged to untagged. With this ratio, you stated you could estimate the number of tagged fish at the point of tagging.

You meant you could estimate the total population at the point of tagging by this means, did you not? A. I did.

Q. Mr. Johnson, do you recall that you testified as to [1357] the percentage of fish seen on spawning grounds in the North Umpqua and in the Willamette River; do you recall that?

A. I do.

Q. Are the waters of the Metolius River as clear or clearer than the waters of the North Umpqua or Willamette, on which fish counts were made by observation, if you know?

A. I would say, without any readings, the technical way of determining these things, that they are highly comparable in clearness.

Q. Do you recall testifying that 2500 chinook fish passed the Pelton site? A. Yes.

Q. In connection with this estimate, did you or your staff count the fish passing above the Pelton site? A. Yes.

Q. You did?

A. Yes—you said did we count fish, or fish and/or fish nets?

Q. No, I said did you count fish nests?

A. Yes.

(Testimony of Donald R. Johnson.)

Q. Over what area?

A. In a portion of the Metolius River below our racks; one place a mile or so downstream—I could refer to my notes, but just to save time, I don't think the exact position is too pertinent—another place above five miles down the stream. [1358]

There were reds in those places, I know—a great number, by the way.

Q. Was that a spot count? Do you consider those spot counts?

A. The men of my staff went on down the stream for a number of miles; I believe the number is in the briefs, and it covered some 17 miles total, as I recall. And they did go on downstream examining the riffles in the area.

May I ask, Mr. Mason, what do you mean by spot counts?

Q. Well, I meant did you pick out just certain sections of the stream and make an intensive count there and then arrive at some estimate from that; that's what I mean by spot count.

A. In part, that's true; we did not cover the entire stream, partly due to inaccessibility difficulty. We were interested in looking over the whole stream, for obvious reasons.

Q. Did you actually—you or your staff, again; I, of course, know that you didn't do it all—did you actually tabulate fish nests, as such, by number, as you went along with your staff?

A. There was, as I recall, one nest seen about, in the neighborhood of a mile or half a mile down,

(Testimony of Donald R. Johnson.)

and one seen in the neighborhood of 5 miles down.

Q. And that's all your men actually saw?

A. That's all I can recall right now.

Q. Do you know how much spawning area is utilized by an [1359] adult salmon in making a nest?

A. That is a difficult question to answer.

In some areas the nests will overlap such that a number of fish can use a rather local, desirable area; in other areas, one fish will get off by itself, can churn up quite an area by itself.

Generally speaking, the redd is in the neighborhood of, oh, 5 feet wide, and 6 or 7 feet long, something like that.

Q. What was that word you used?

A. Redd, r-e-d-d.

Q. What is that?

A. That is the nest built by the salmon.

But, again, I wish to point out that they overlap, and it is difficult to say from the site of a redd that it is really one fish, or one female, or several that have been spawning close together in a desirable riffle area, for example.

Q. Did you or your staff measure how much spawning area is available for use by the spring chinook above the Pelton site?

A. You mean square yards, and so forth?

Q. Yes.

A. No, sir; and I do not intend to; I don't think it's particularly pertinent.

Q. I merely asked you, that's all.

(Testimony of Donald R. Johnson.)

You estimated that 2500 chinooks passed the Pelton site in an average year? [1360]

A. Yes, based on a knowledge, recognizing what we had done.

Q. I am just trying to recall your testimony.

I understand you base that estimate part on the fact that 258 spring chinook on the average reached the Metolius racks each year? A. Yes.

Q. Now, you state "every other factor" you used in making your estimate and the weight given to each factor——

A. That's a very good question, Mr. Mason.

I have gone on on that at some length before.

Q. I want it all in one place; I am not trying to argue with it, I just want to see how you arrived at it.

A. All right. The history of the percentage of fish seen in many other places—for example—

Q. Could you give us the factors, just 1, 2, 3?

A. The percentage of fish seen in a wide variety of places is an important factor.

Q. Yes.

A. I've sighted the fall chinook on the upper Columbia, where we have been able to find some 505 live and dead fish, actually by covering the area, boat, airplane, on foot, and so forth, where we know that they are in that magnitude of 65 to 95 thousand fish up there. [1361]

I cited the North Umpqua, where some 15 per cent of the fish were seen.

I cited the Willamette, where some 10 per cent

(Testimony of Donald R. Johnson.)

of the fish arrived in racks; and surveys of rack areas accounted for some 8 per cent of the fish.

There are numerous places I have not cited before.

Q. Well, in the interest of brevity, that is one factor, as I look at your formula.

A. It certainly it.

Q. Now, would you give us other factors?

A. And, associated with that is the conditions of those streams; the fact—the visibility, size, studies relative to spawning time, and those things which I have, I believe mentioned; the factors on each stream relative to the known number and related to the count; and those factors were used in combination on the Metolius.

Q. Any other factors that you took into consideration in making your estimate on the Metolius?

A. I'm sure there are, but none occur to me off hand.

Q. Well, would the time spent in looking for fish in the spawning area be a factor? A. Yes.

Q. Any others?

A. The observations of lay people certainly have some influence on the estimates I made. [1362]

Q. Can you again, without going into too much detail and giving me too long an answer, tell me how you weighed these factors and arrived at your final estimate?

You might do it by which is the most important, next important, and so on; I'm not trying to tie you down to a percentage.

(Testimony of Donald R. Johnson.)

A. Yes. In the first place, that is difficult to answer precisely; I don't want to take too much time.

Q. Can you do it qualitatively?

A. The numbers of themselves, of course, is the primary thing; and then, the visibility conditions; time spent on it; time of spawning, relative time of spawning—I mentioned visibility—size of the river is important.

I'm not sure you could list them in that fashion; they all would be considered.

Q. Do you recall your testimony that you estimated 5,000 steelhead capacity at Pelton Site?

A. Yes.

Q. That's your testimony, and not Mr. McKernan's? A. I estimated that.

Q. Will you explain in detail how you made this estimate? Give each factor used and its derivation and weight, similar to your last answer; similar to the steelheads; that's what I'm after.

A. Certainly; I'd be glad to. To begin with——

Q. Could you give use the differences, maybe that's the shortest way to arrive at what I'm talking about.

A. We did not have overall spawning ground surveys on steelhead, and there are some good reasons for that that I can point out briefly; and that is, steelhead spawning in the spring, when some of the areas are rather difficult of access and the streams are high and difficult to see, as far as the stream survey is concerned—I obtained

(Testimony of Donald R. Johnson.)

data from fishermen on the river, anglers—and a limited number, by the way—but who were associated—who fished it regularly; and their data indicated that the catch of fish was somewhere, something short of 2,000 fish. I have forgotten the figure; I think it was 1,875; but that would not give an error of false precision, and is not precise.

By the way, I think I mentioned what I think is of some importance, that there were fish taken in various upriver tributaries, which was not considered at the time this estimate was made, and which Mr. Campbell also mentioned previously, and I mentioned that one family, whose membership, I understand, totalled 7 associated adults, had caught 118 steelhead in the lower Deschutes River last year.

I estimated the total catch at somewhere, let's say, 2,000 fish; it was actually around 1,900.

Q. Is that 2,000 for the total river, or where?

A. I have actually been considering the main fishery in the lower Deschutes, at the time. At the time I made that [1364] I did not have any particular data on the catches on the upper river.

Referring to the Crooked and some other tributaries where catches had been made, and so on, and the catch and the escapement I mentioned on the Umpqua, is something corrollary that would cast some light on the escapement relative to a catch of the fish by the sport fishery.

And there the data showed that one fish was taken for every 10 that escaped.

(Testimony of Donald R. Johnson.)

Q. Was that salmon or steelhead?

A. Those were steelhead.

Q. Were there any others that came out of any other streams, that you used the factor as you did salmon counts on the Willamette?

A. We of the Fish Commission have not made the counts of steelhead on the Deschutes.

Q. Well, have you anywhere else in the state?

A. Not members directly associated with me on —the Fish Commission has, but not members with me.

Q. You didn't use that anywhere? Even if you have made the count, you didn't use it in your estimate? A. I did not.

Q. Could you tell us how large a steelhead spawning nest is, approximately?

A. I've seen a number of them. As I recall, I would say [1365] about 60 per cent of the size of a chinook nest. I've never gone out and started measuring nests, you understand; this is an estimate.

Q. Do you know the area, or the size of the spawning area above Pelton Site that is suitable for spawning steelhead, approximately?

A. I know from——

Q. I'm trying to get the total area.

A. Yeah. I believe that the data you have from the Game Commission is more pertinent to that than any I would give you. I could look some data associated with it up, but it would take about 15 minutes.

(Testimony of Donald R. Johnson.)

Q. All right.

You have given us some figures on catch; I'm not sure we have it all in one place.

Do you know how many steelhead were caught above Pelton Site in any one period?

A. I do not. You may have obtained that from Mr. Campbell. I do not recall.

One thing, I've been told, just in conversation with members of the Game Commission, which may not have been brought out here, or may not be pertinent, the sport catch above Steelhead Falls, above Pelton Site, more or less the upstream end on the main stem of the Deschutes, the catch was approximately 30 fish per year. [1366]

I may be wrong, but I understand that area has been closed to fishing, so I said, "Was."

Q. Do you recall your testimony on the marking of fingerlings above and below Bonneville?

A. In a general way, I do, naturally.

Q. Do you know how many such studies of fingerling plantings above and below Bonneville were made?

A. There were a number over 4 or 5 years, involving rather substantial numbers; as I recall, in the hundreds of thousands of fish each year; but, that, as I say, has not been published, and it's more or less conversation.

Q. What I'm trying to arrive at is, one study for a short time, and you tell me it's been carried over a period of years?

(Testimony of Donald R. Johnson.)

A. It's been carried on over a cycle, as I recall.

Q. Do you know what number of fingerlings were released above and below the dam, respectively? Do you know?

A. I believe there were an equal number.

Q. Do you know how many fingerlings were released above, and also below, in any one study?

A. I'm not real sure; I better say I do not know.

Q. You don't have any idea?

A. Yes, I think they were in the neighborhood of a hundred thousand above and below, yearly, but I could be off—a hundred thousand.

Q. A hundred thousand above and a hundred thousand below? [1367]

A. I think so, but I don't know; I'm not sure.

Q. Do you know what percentage of fingerlings were later recovered as adult fish anywhere in the watershed?

A. No, but I think that data is in the Fish and Wildlife Service, and of course in our work we found a number, undoubtedly, that was an appreciable per cent.

Q. I am trying to get in the record here as much information as I can on this experiment; you don't know? A. No.

Q. Do you know at what depth in this proposed Pelton reservoir the water would be taken for use through the power house?

(Testimony of Donald R. Johnson.)

A. Mr. McKernan has looked that up; I had access to that a while back, but I've forgotten.

Q. You also mentioned that holding salmon below the re-regulating dam would cause injury to them; is that substantially what you testified to?

A. I quoted a statement to that effect.

Q. Could not the spring chinook be trapped, hauled and released above the Pelton Site, as a physical matter?

A. I think it might be possible, but I don't think it could be done without some injury to the fish, some very appreciable injury to the fish, which, by the way, I should have emphasized, has indicated in the past by other data that I have mentioned—— [1368]

Q. Could be done?

A. Yes, it probably could be done by various mechanical contrivances; there is no gravity fishway known of that height that passes any substantial runs, none that I know of at all, of that height.

Q. Are you hauling any fish in Oregon, today, trapping and hauling?

A. Not to my knowledge; I'm almost certain we're not hauling any fish.

Q. Has the Commission, or any fish agency in Oregon had experience in the past in hauling fish, adult fish?

A. Most of the hauling has been done elsewhere. Let me see if there has been any in Oregon——

Q. I know there has been some elsewhere, but

(Testimony of Donald R. Johnson.)

I want to know what the experience in Oregon is.

A. Yes.

The only hauling I can recall of is a very minor distance; for fish culture purposes, a few fish were taken at Bonneville Dam and to Bonneville hatchery, which is a haul of less than a mile, about a mile; and there was a haul of that sort made within the last 2 or 3 years, which, by the way, we had very severe losses on the fish involved.

Q. Well, will you turn to Exhibit 31, please, the first page; there on the first paragraph a statement is made with respect to the chinook fish area at Shirar's Falls. What kind [1369] of fish was that?

A. Sport fishery, and dip netting.

Q. Well, is dip net fishery sport fishing?

A. No, well maybe I have--what paragraph are you in?

Q. The first paragraph.

A. I'm not sure that I said no dip net fishery; there is dip net fishery at Shirar's Falls.

Q. That wouldn't be a sport fishery, would it?

A. No, you asked what fishes were there and I said sport fishery.

Q. Well, my next question was to find out for the record if dip netting was considered sport fishery, that is all. A. No, it is not.

The Indians, to make it clear, have certain ancestral rights in various places around the Columbia Basin, and exercise them.

Q. That is, exercise the Indian fishery?

(Testimony of Donald R. Johnson.)

A. Yes, sir.

Q. Is the steelhead fishery at the mouth of the Deschutes sport or commercial?

A. It's sport.

Q. Do you know what percentage of the present spring chinook salmon passing the Pelton Site actually reaches the Metolius racks? The question is, do you know?

A. Yes, from the figures I have given you.

Q. What is that percentage? [1370]

A. About 10 per cent.

Q. On page 7 of Exhibit 31, you refer there to blueback or sockeye being restored in the Suttle Lake; do you know how many blueback could be sustained naturally at a level of near full productivity, utilizing Suttle Lake?

A. I can draw a parallel that might throw light on it, and I am not going around measuring areas, but I have worked—I have been on Suttle Lake and around it, and I also worked on Lake Cultus in British Columbia in my association with the International Sockeye Salmon Commission; and in 1939, one of the seasons that I was there for some of the time, there were some 70 odd—I believe 77—but, more than 70 thousand fish in that lake.

It is in the general magnitude of the same size as Suttle Lake. The general appearance, superficially, is the same. That area is west of the Cascades, whereas Suttle Lake is east; there are those differences.

(Testimony of Donald R. Johnson.)

By the way, that's one year's run; the runs fluctuate back and forth; I'm not sure what the runs are, at the moment.

Q. I believe you gave us an estimate of the percentage of the Columbia River that is produced in the Deschutes River; you have given us some figures on that, have you not?

A. It seems to me that I did not give precisely in that fashion, because I did not recall the catch data above Bonneville, so I felt it was difficult to make a good estimate. [1371]

Q. Well, let me ask you this: do you know whether the Fish and Wildlife Service has made an estimate of the percentage of the Columbia River run to be expected in the Deschutes River? The question is, do you know?

A. I'm quite sure they did, yes; I'm quite sure. I don't know what it was, but I'm quite sure they did.

Q. I think you covered this with Mr. Phillips yesterday, but I'm not sure I understood it: you told us that you had made, your men that work under you, made some surveys in 2 years in connection with your fish estimate in the Deschutes: is that correct? A. That's correct.

Q. Now, could you tell us the number of man-days spent in that survey in each year respectively, without giving the dates, unless you particularly want to—I don't want to tie you down to dates.

First of all, you said something about a preliminary survey. A. I'll make that——

(Testimony of Donald R. Johnson.)

Q. Just the survey.

A. The preliminary survey, just the spawning fish, is what I will give you.

In 1949, according to the data I have, that I'm referring to, there were 22 days; 11 days by two men.

Q. Twenty-two man-days; now, how about 1950?

A. 1950 I would expect to be less because of the more [1372] familiarity with the area. Yes, in 1950, the survey was 10 man-days.

Mr. Mason: That's all I have, Mr. Examiner.

Presiding Examiner: Any redirect?

Mr. Higgs: Just one or two very brief questions.

Redirect Examination

Q. (By Mr. Higgs): Mr. Johnson, do commercial fishermen report their catches of fish to the Oregon Fish Commission?

A. The buyers report them; the fishermen have a passbook that the initial record—the general record used is the buyer's record.

Q. So that if a fisherman sold to a buyer out of Oregon and they took them out of Oregon to a buyer, you wouldn't get the report, is that correct, unless the fisherman turned in the report?

A. Well, I'm quite sure that we get the data for fish taken in Oregon. In other words, I'm quite sure that the hole has been plugged.

Your questions indicate to me that I'm perhaps not familiar with that as I might be.

(Testimony of Donald R. Johnson.)

Q. I see; I didn't know whether you were or not.

Now, the Deschutes River is not a commercial fishery stream, is that correct?

A. There is no fishery on the Deschutes itself; it does [1373] contribute to the—that's right, it does contribute to the commercial fisheries in the Columbia River below.

Q. Your commercial fishing is principally, the sports—in the Deschutes and its tributaries, is that of a spawning area, in what it might contribute to a commercial fishery on the Columbia?

A. Yes; and, of course, the troll fishery, which, of course, is also important.

Mr. Higgs: That's all.

Presiding Examiner: Recross, Mr. Phillips, please?

Mr. Bowles: May I?

Recross Examination

Q. (By Mr. Bowles): There has been considerable question here with respect to your fish program, Mr. McKernan——

Mr. Mason: Johnson.

Q. (By Mr. Bowles): ——Mr. Johnson; this research program doesn't take in salmon alone, does it?

A. No, it involves just about all the species of fish and shellfish that are of commercial importance to varying degrees in the state.

Q. And your research program is predicated

(Testimony of Donald R. Johnson.)

upon your appropriations from the legislature, as I understand it?

A. We get appropriations from the legislature to operate [1374] it.

Presiding Examiner: Mr. Bowles, I am not going to be severe on keeping to material brought out on redirect, but I will ask you to try to do that as much as you can.

Mr. Bowles: There is just one other question; the answer can be very brief.

Q. (By Mr. Bowles): Now, taking into consideration the observation of lay people with respect to your fisheries counts, those could influence your estimates downward as well as upward, could it not, Mr. Johnson? A. Yes.

Mr. Bowles: That's all. [1375]

Q. (By Mr. Phillips): Mr. Johnson, could you give us a rough idea of what proportion of the whole Columbia River Fishery is represented by the salmon in the Deschutes?

A. Let's see if I can——

Mr. Mason: I don't know if I understand that question. Are you asking how much of the Columbia River Fishery is contributed by the Deschutes?

Mr. Phillips. That is right.

Mr. Higgs: I don't think that is proper recross.

Mr. Phillips: I think you asked him the question, Mr. Higgs, and I think he said their sole interests were in the Deschutes as a spawning grounds and nothing else.

(Testimony of Donald R. Johnson.)

I want to know what proportion it is.

Mr. Higgs: I think that has been gone into on cross examination and has been asked and answered.

Presiding Examiner: Is this a percentage figure again?

Mr. Phillips: He can answer in percentage or any way he wants to.

A. You will bear with me a minute, Mr. Phillips?

Q. Yes, sir, go ahead.

A. I will tell you what it involves. It overlaps Mr. McKernan's question and so for the sake of brevity, I suggest you put that off.

Q. Do you know, though? [1376]

A. I do not know offhand. I believe it can be computed.

Q. Can you give us a rough idea or guess?

A. I would have to make recourse to know.

Presiding Examiner: The answer is that you can't give an estimate, is that right?

The Witness: Not offhand, I can't.

Presiding Examiner: That is the end of it.

The Witness: Not without recourse to the data.

Q. (By Mr. Phillips): You stated in your testimony that you could estimate very readily the Willamette River at 20 per cent, but you didn't give any estimate on any river then?

A. I don't remember testifying any 20 per cent. You seem to be a little confused.

(Testimony of Donald R. Johnson.)

Q. That is what I though you testified to yesterday, that the Willamette River and its tributaries represented 20 per cent of the Columbia Fishery.

A. I do not recall testifying to that.

Q. I guess the record will show.

A. I am sure it will.

Q. Let me ask you one other question then if you can't answer this one. Do you know why the bluebacks go into Cultus Lake in British Columbia and do not go into Blue Lake in—into the Suttle Lake in Oregon?

Mr. Higgs: Just a minute. I object to that as not proper [1377] recross examination. That was brought out on cross examination through Mr. Mason's question.

Presiding Examiner: We have violated the principal so many times that I will permit the answer to this question, in order to speed things up a little bit.

A. There are a number of dams in Lake Creek which are subject, by the way, to improvements to be made passable. I certainly think that those dams are one of the factors involved.

Q. Were those dams installed with the approval of your commission? A. I suspect not.

Q. You have to have a permit in order to build one, don't you?

A. I don't know about all of the structures. I do not—I still doubt although I do not claim that is in my province with the Commission?

(Testimony of Donald R. Johnson.)

Q. You don't know, is that the only reason when they don't come into Suttle Lake in your opinion?

A. I said before that was certainly one of the reasons. I *don't what* I could elaborate on it.

Q. That is the only one you know?

A. That is the only reason I know. I do believe that the area can be used by blueback salmon.

Mr. Phillips: That is all.

Mr. Mason: I have one very simple question.

Q. (By Mr. Mason): Going back to the Indian Fishery on the Deschutes River, is that Indian commercial fishery, or Indian subsistence fishery?

A. Well, Mr. Mason, theoretically, at least it is an Indian subsistence fishery. Occasionally, I have heard comments that.

Q. That is all I wanted to know. I just wanted to know what is was primarily. If you don't know you can't patrol all of the fish.

Mr. Mason: That is all I have, Mr. Examiner.

Presiding Examiner: In view of the latitude given on the recross examination, do you have any questions, Mr. Higgs?

Mr. Higgs: Thank you very much, I have none. I might open the whole thing again.

Presiding Examiner: We are anxious to get a very complete record here as much as possible within the bounds of proper procedure.

Thank you very much, Mr. Witness. You are excused.

(Witness excused.)

DONALD L. McKERNAN

was recalled as a witness, and having been previously sworn, was examined and testified as follows: [1379]

* * * * *

Cross Examination

Q. (By Mr. Phillips): I assume now that Mr. Bowles has finished his examination I might ask you a few questions.

Mr. McKernan, how long have you been with the Oregon Fish Commission?

A. Since October, September or October, 1945.

Q. Is that the only commission you have worked with in Oregon?

A. That is the only Commission I have worked with in Oregon.

Q. What is your position, or what are your duties?

A. I am director of research of the Oregon Fish Commission and among my duties are those entailing the driving, drawing up and approving and instigation, so to speak, of the research programs which are designed to maintain and where possible to increase the fishery resources of the State of Oregon.

Q. Is Mr. Johnson one of your subordinates?

A. Mr. Johnson is my assistant, yes, sir. [1380]

Q. Who is your superior?

A. Mr. Snomela.

Q. And he is the Master Fish Warden?

A. He is the Master Fish Warden.

(Testimony of Donald L. McKernan.)

Q. What are his duties?

A. They are clearly set up by the State Code. I think he is responsible to the Commission for the preservation and the conservation of the fishery resources in Oregon. That is my general concept of his duties. I believe they are more specifically laid out in Oregon law.

Q. To get the continuity, recommendations that Mr. Johnson makes on any particular project, any particular thing in the interests of efficiency are made to you, are they? A. In general, yes.

Q. You make them to Mr. Snomela.

A. Yes.

Q. Then in turn he makes them to the Commission? A. Yes.

Q. So that your activities are all reported to Mr. Snomela? A. More or less, yes.

Q. Do you ever report direct to the Commission?

A. Only upon request of Mr. Snomela is what it amounts to.

Q. You have been acquainted with Mr. Snomela for some years, have you not? [1381]

A. Yes, I have.

Q. I will hand you, Mr. McKernan, an original letter, signed by Mr. Snomela, addressed to Mr. Seton, Vice-President of Portland General Electric Company and ask you if you can identify that that is his signature on that letter?

A. That has every appearance of being his signature.

(Testimony of Donald L. McKernan.)

Q. Mr. Phillips: Mr. Examiner, I would like to substitute photostatic copies of this letter, of the original letter as an exhibit in this case and have it marked for identification at this time.

Mr. Mason: You say this is a substitute?

Mr. Phillips: I would like to substitute a photostatic copy as an exhibit of the original letter.

Mr. McKernan has the original letter.

Presiding Examiner: It is our custom to restrict the offer of exhibits to the period during which the parties presenting direct testimony is proceeding. There is no objection, however, to identifying a document during cross examination.

I just wanted to pass that on to you in case you intended to offer it now.

Mr. Phillips: Well, I would like to get it identified anyway.

Presiding Examiner: The letter bearing the date of March 7, 1951, on the stationery of the Fish Commission of Oregon, addressed to Mr. Waldemar Seton, Vice-President, Portland General Electric [1382] Company and signed by Arnie J. Suomela, Master Fish Warden, will be marked for identification at this time as Exhibit No. 33.

(The document above referred to was marked for identification as Exhibit No. 33.)

Mr. Mason: That is a two page letter, is it not, Mr. Examiner?

Presiding Examiner: That is right.

Mr. Phillips: That will be Exhibit No. what?

Presiding Examiner: Three three.

(Testimony of Donald L. McKernan.)

Q. (By Mr. Phillips): Mr. McKernan, in your research for the Fish Commission how extensively do you go into the examination of stream areas in the State of Oregon?

A. Would you repeat the question, please?

Q. In connection with your duties in research for the Fish Commission of Oregon, how extensively do you go into the examination of the streams in the State of Oregon? A. Quite extensively.

Q. And by what method?

A. There are several methods in use. For the most part we send survey crews out to survey—survey crews of trained men to examine the streams in considerable detail as to their physical qualifications for salmon productivity. These crews go around usually during the summer time prior to spawning. Mr. Johnson spoke of it in his testimony of some of the examinations [1383] of the Metolius and Warm Springs Rivers prior to spawning. Those are the type of examinations that we carry out; studies on streams to find out the most probable areas of salmon production or salmon spawning and what barriers—and inimicable, pardon me, conditions that exist on these streams which might be corrected by our engineering crews.

Then these men write detailed reports and we submit them with recommendations to our engineering division for further action, copies of which goes to our office, Mr. Suomela and with any administration of the department agency and a deci-

sion is made whether or not to act upon these recommendations.

In connection with the study of stream areas, do you make water temperature tests also?

A. We take water temperatures almost always, although there are some exceptions where one of the field parties has broken a thermometer, which occurs quite often. They actually carry little thermometers that they put in their pockets and we take water temperatures wherever we can and wherever it is possible.

Q. What kind of thermometers do you use?

A. We will use various kinds. If the thermometer is not a tested thermometer, that is, tested in a laboratory then we compare the readings from our field thermometers with tested thermometers before we have a man go out in the field to use them.

Q. Are they open thermometers or do you use them in a flask? [1384]

A. They are open thermometers.

Q. All of them?

A. I wouldn't guarantee that, but I believe so. They are small thermometers that fit into a small aluminum case and have somewhat the same appearance as a fountain pen except that they are metal. They take it out of the case and insert it into the stream in the upright fashion, which is recognized by fisheries biologists everywhere.

Q. Is your commission also making surveys of lake areas?

(Testimony of Donald L. McKernan.)

A. Not so much because the only place that we are really concerned with lakes are in the Columbia River system where certain of the lakes—That is not quite true, I made a slight mistake, but I will elaborate on it later. In the Columbia River system, we are very much interested and concerned about the increasing loss of the bluebacks or sockeyed salmon areas of productivity in the Upper Columbia, so we have put some considerable thought into improving lakes, what lakes are available for blueback production.

I think we have agreed that the most promising lakes are Blue and Suttle Lakes, at the headwaters of the Metolius River.

Q. What about Marion Lake before they started building the Detroit Dam? Did you examine that?

A. Yes, we did, but at the time our studies started the dam was authorized and it was pretty well agreed that it would be constructed shortly, so we didn't consider it seriously. [1385]

Q. How long ago did you start making these field studies?

A. In 19—I came to work in September or October of 1945 and we started making the Columbia River Field Studies on the Willamette system in 1946. The Willamette of course came first because we had eminently before us the Willamette Valley Project, which entailed large number of dams and river development work.

Q. Had there been no studies made before you came to the Commission?

(Testimony of Donald L. McKernan.)

A. Yes, there had been studies. Dr. Willis H. Rich, Stanford University, was employed by the Fish Commission during the '30's and up until the second world war as director of research, he specialized in the Columbia River and Salmon and he wrote a great many public reports on the Columbia River Fisheries.

In addition to his work the Fish and Wildlife Service had started surveys, Mr. Johnson quoted from one special scientific report No. 38, these surveys by the Fish and Wildlife Service were begun in the 30's along about the time the Grand Coulee Dam was under consideration and our objective was to get a general survey of the salmon producing areas in the Columbia River System at that time and including tributaries in Oregon.

In addition to that, of course, the Game Commission has carried on very fine surveys in certain areas of Oregon and now some lakes on the Oregon Coast that contains salmon, salmon go [1386] into those lakes, mostly silver salmon, and a few chinooks and we are also interested in these lakes that abutt the beaches along the Oregon Coast.

Q. (By Mr. Phillips): Do you also in your research make studies of treatises that have been made through the years, with respect to water and water conditions in the streams and lakes?

A. Yes, we do, as much as possible.

Q. And a goodly number of those have been made in Oregon, haven't they?

A. A considerable number; I would remember

(Testimony of Donald L. McKernan.)

right off hand, and I probably couldn't quote from any at the present time.

Q. Do you have occasion to study the state statutes also, with respect to fish and commercial fishing, and the Fish Commission?

A. I do not have occasion to study the state laws in particular; most of the information I have has been gathered through my contact with staff members in our department who do specialize in that particular field.

When I have a question involving the state law, I usually submit it to a staff member of our commission who is much more qualified than I am; being a research man, it is not part of my duties to delve into the state laws nor consider the legality or illegality of various things, and so I pretty well try and keep out of that.

Q. Will you turn to page 11 of your report——

Mr. Mason: Mr. Examiner, with your permission, could we [1388] take off our coats? It's getting a little warm in here.

Presiding Examiner: Yes, if you desire to do so.

Q. (By Mr. Phillips): Have you turned to page 11 of the report? A. Yes, I have.

Q. That portion there with respect to artificial propagation, I understand you are the person who got up that portion of the report?

A. I am primarily responsible for this report.

Q. You are primarily responsible?

A. Primarily.

(Testimony of Donald L. McKernan.)

Q. Will you read the first three words of that first sentence, under artificial propagation?

A. Aloud?

Q. Sure, read it aloud.

A. "According to law, when an impassable dam is built on a salmon stream, the builders may be required to erect a hatchery to take care of the runs so blocked"; is that what you wished me to read?

Q. You have studied that portion of the law?

A. No, I have not studied it; this is according to information supplied to me by members of my commission, staff members of my commission.

Q. Well, would they study the law?

Mr. Higgs: I object to that as calling for a conclusion. [1389]

Mr. Phillips: I will withdraw it.

Mr. Higgs: More or less facetious, I suppose?

Mr. Phillips: It is facetious.

Q. (By Mr. Phillips): What I want to know, when you make a statement like that in your treatise here, "according to the law," are you leading us to believe that you know what the law is in respect to these dams, or not?

A. I think that biologists are only human, and once in a while when we get outside of our field we make errors; that's my understanding, that that statement is true. I, of course, am out of my field in interpreting the law, and therefore, I may be incorrect.

(Testimony of Donald L. McKernan.)

Q. And do you know how long it has been in the statutes of Oregon? A. No.

Mr. Higgs: I object to that as calling for something entirely out of the field of his testimony.

Presiding Examiner: The witness has disclaimed any knowledge of the law, and I don't think questions should be pursued along that line.

Q. (By Mr. Phillips): Now, in your reading in connection with your research, have you had occasion to read the report made by the special engineering group called the Board of Engineers Report to the [1390] Federal Power Commission on the use of the Deschutes River, in August of 1921, and which report was premised upon extensive hearings which were held in Portland, Oregon, and many people attended and participated? Have you read any part of that?

A. Is that report published?

Q. It's apparently a typewritten report; it's in the records of the Federal Power Commission. A local copy is in the office of the United States Geological Survey, Water Resources Department.

A If that is not a published report, and it was not drawn directly to my attention, I question whether I have read it. I don't recall whether I have or not, but I question whether I have.

Mr. Mason: Mr. Examiner, may I request permission to see the report?

Presiding Examiner: You may.

Mr. Mason: Since he states it is in the Commission's records, I would like to have it.

(Testimony of Donald L. McKernan.)

Q. (By Mr. Phillips): You do use the services of the USGS at certain times? A. Yes, I do.

Q. In fact, they take some water temperatures?

A. Mostly water flows; I believe they are taking some temperature data for us.

Q. Yes, flows for temperatures. [1391]

Do you know whether or not the Commission made any protest with respect to salmon, in connection with the hearing before the Board of Engineers, in August, 1921?

A. I'm sorry, Mr. Phillips; it's before my time.

Q. All right.

Do you know whether or not the Fish Commission of Oregon made any protest to the establishment of the dam on the Deschutes by the Columbia Power Company pursuant to an application in 1924?

A. Again, before my time; I do not know.

Q. Before your time.

Mr. Mason: Mr. Examiner, may the record show that I am returning the report to Mr. Phillips?

Q. (By Mr. Phillips): Now, are you familiar with the investigation that your commission makes with respect to tagging of fish? A. Yes.

Q. Is that part of your research program?

A. It's part of our research program; I am not directly responsible for that in connection with the river program; Mr. Johnson has been responsible until a short time ago. And, with regard to our ocean salmon, troll program, we have another research man who is directly in charge of that.

(Testimony of Donald L. McKernan.)

But, I am familiar, and I have received and approved the programs, the written programs, before they commenced. [1392]

Q. How many men do you have working offshore on a tagging program?

A. Well, during the summer time we have in the neighborhood of from 20 to 25 men working on salmon throughout the State of Oregon; that includes our coastal rivers, of which there are a great many, in addition to the Columbia River System.

Offshore we have approximately, during the summer time, when the troll fishery occurs, we have approximately four or five men working on the troll salmon, tagging, making market studies, food studies, and other associated statistical studies of the ocean salmon troll fishery.

Q. Do you know how much money is spent in the tagging program in a year?

A. I couldn't tell you that right off hand, I'm sorry. There's a considerable sum of money, part of which has been appropriated by the Pacific Marine Fisheries Commission to aid the states and to get this coordinated troll salmon program inaugurated on the Pacific Coast.

Q. Well, where, then, does the Pacific Marine Fisheries get its money?

A. It derives its money from each of the three Pacific Coast states; the legislatures of each of the three Pacific Coast states.

(Testimony of Donald L. McKernan.)

Q. You mean as far as Oregon was concerned, an appropriation would flow from Oregon into the Pacific Marine Fisheries?

A. Yes, sir. [1393]

Q. Then they apportion it back to the State Fish Commission to take care of this program?

A. Well, it's not quite as simple as that. The way it has worked, where programs have been instituted which were not in our budget, which were not budgetted for, the Commission has given us small grants to tide us over until we could request these funds ourself, directly from our legislature.

Q. You don't handle the actual accounting, though, yourself, with respect to tagged fish?

A. I attempt to do some field work with the men in all our investigations.

Q. How many hatcheries do you operate in the state?

A. I think we are operating 14 or 15 at the present time, perhaps 15; the count is in here, and I could count it on my fingers readily, but I believe —in a moment I'll count them.

Fourteen were operating during the 1949-51 years, but the Sandy River Station has been re-activated and is also operating at the present time, so that would make 15, if I'm not mistaken.

Q. These hatcheries that your Commission uses are used entirely for propagation of commercial fish, are they not, commercial species of fish?

(Testimony of Donald L. McKernan.)

A. They are primarily used for the propagation of salmon and steelhead.

Q. Yes, and the State Game Commission, they have some [1394] hatcheries. also, do they not?

A. Yes.

Q. And they propagate sport fish?

A. They propagate primarily trout, but to some extent steelhead; and in some rivers that we are not primarily concerned with, such as the Rogue River and certain others, I understand that they also propagate some salmon.

Q. What unit of measurement do you use to determine the capacity of a hatchery?

A. There are several units of measurement to compare the capacity of a hatchery, and, of course, it is not a particularly good question for that reason.

There is the capacity of the hatchery, measured in the amount of water that goes into the hatchery; and there is the unit of measure concerned with the egg capacity of the hatchery; and there is also a unit of measure concerned with the rearing capacity of the hatchery. That depends upon the rearing of zero class fingerlings, or yearling fingerlings, depending upon the species, the situation, and perhaps others.

Q. The element of rearing entails holding ponds, I understand: is that correct?

A. The element of rearing entails holding ponds, yes; entails rearing ponds, not adult holding ponds, so we call them rearing ponds.

(Testimony of Donald L. McKernan.)

Q. Smaller ponds than holding ponds, are they? [1395] A. Generally, yes.

Q. Is the Bonneville Hatchery under your Commission, or under the Game Commission?

A. It's under our Commission, if you are speaking of the hatchery at Bonneville, Oregon; it's under our Commission.

Q. Is that one of your Commission's?

A. That hatchery is one of ours.

Q. To get my English straight on the thing, those ponds they have up there, are they rearing ponds?

A. They are considered rearing ponds.

Q. What is the total egg capacity of the 15 hatcheries? A. I don't know.

Q. Do you keep any record of egg capacity?

A Oh, yes; sure, it's all in the records, and I could get it for you in 10 or 15 minutes by computation, but I certainly don't have any such records—it's up in the millions of eggs, of course.

Q. Yes, I know——

A. But, I wouldn't know right off hand what our capacities are. They are in our records in the Commission, and they vary tremendously; our hatcheries are not of the same size; they are not of the same vintage. Some of them were built in the early 1900's, and some of them are very recent; their capacities vary tremendously.

Q. Do you have any way of giving us the capacity of [1396] these hatcheries by any other unit of measurement?

(Testimony of Donald L. McKernan.)

A. Not right off hand. I of course work with those figures all the time, but I make no attempt to memorize such simple figures as that; they're in the record, and so forth.

Q. Your State report here is Exhibit 2; does that have anything in there that gives the capacity indications of hatcheries?

A. No, it does not, because, of course, each year the runs and the numbers of fish taken vary to some extent. If there is any specific hatchery that you are interested in the capacity of, well, perhaps I can recall that one, but all the hatcheries together, I wouldn't be able to say; it probably would be in the hundreds of millions of eggs.

Q. Well, if I go down this list I might get some taking stations instead of hatcheries; is the McKenzie River a hatchery?

A. Yes; I don't recall the capacity of the McKenzie. I think it has taken up to probably 10 millions of eggs.

Q. Ten million?

A. Yes; maybe more, maybe 15 million.

Mr. Mason: That's annually?

The Witness: Annually, yes; that's annual figures.

But, from our biennial bulletin, it is not possible to——

Q. (By Mr. Phillips): Are they measured by the number of eggs they take, or the number of eggs they accommodate? [1397]

(Testimony of Donald L. McKernan.)

A. By the number of eggs they can accommodate.

Q. That's what I thought.

Now, your figure of 10 million, or 15, is the number of eggs they can accommodate?

A. That they have accommodated.

Q. I see; all right——

A. I'm recalling that from memory; I do not wish to have that appear as accurate.

Q. Is Willamette No. 2 a hatchery?

A. That's a hatchery.

Q. How many eggs do they accommodate?

A. I don't recall right off hand; the Middle Willamette Hatchery, as I'm sure you know, is being renovated and expanded because it's up above the Lookout Point Dam.

Q. You couldn't give us a rough estimate?

A. No, I couldn't.

Q. What about the North Santiam?

A. Well, I'm afraid that I'm just not going to be able to tell you—the North Santiam—no, I'd rather not say.

Presiding Examiner: Mr. Phillips, would it help if he had the lunch hour to look these things up, because you're not getting anything out of him on this subject.

Mr. Phillips: Well, I was wondering: maybe he should, during the lunch hour. [1398]

Q. (By Mr. Phillips): Can you get those figures during the noon hour, the capacity?

A. I can try

(Testimony of Donald L. McKernan.)

Mr. Phillips: I'd appreciate that.

Presiding Examiner: Do you regard that information as particularly pertinent to your presentation?

Mr. Phillips: Yes, I think so.

Mr. Mason: Let me interpose in there; I'm interested in the same situation. I understand in the record, here, that this proposed hatchery has been stated as having a certain capacity, and I would like to have this witness give us some fact or way of comparing this proposed hatchery capacity with the existing.

If there would be an easier way to do it, I would like to have it?

The Witness: There might be. I think I see what Mr. Phillips, and I am pleased to discuss it.

In the first place, none of our hatcheries at the present time, with the exception of the dubious position of the Marian Fork Hatchery in the North Santiam, none of our hatcheries are being called upon to take an entire salmon run and rear it and then liberate all the fish.

Just for an example, Mr. Phillips mentioned the McKenzie Hatchery. Now, the McKenzie Hatchery is in the Upper McKenzie River, a tributary of the Willamette River; and we can take, say [1799] for example, 5 million eggs at that particular station, and allow another 5 million or perhaps 10 million potential natural egg depositions in the stream, in the McKenzie.

And, we can take some of those young fish and

(Testimony of Donald L. McKernan.)

we can plant them in the headwaters of the McKenzie for natural production. That is, we are deriving a tremendous benefit from our hatchery in reducing, we think—we're not certain of this—but, we think in reducing the mortality to the time of feeding.

Then, we can plant some of these fish in these upper little rivulets and tributaries of the McKenzie River.

All right; now, I could go on and repeat that situation in most of our hatcheries, but I won't; I'll just use that for an example.

Then, we can go over to the Metolius River, and the productive area of the Metolius is going to be wiped out. We're going to have to take the entire run in the river and we're going to have to rear those fish until the time when those fish are ready to migrate by themselves downstream, because the productive areas of those rivers are not the deep, flowing river itself, but the small, gravely riffle areas, where aquatic insects propagate and the food is in the stream; and that's the upper areas of these rivers.

Now, that's going to be completely destroyed in the Deschutes, so that our facilities on the Deschutes, then, must not only take care of all the eggs which will come from those [1400] fish, but must also take care of the rearing of those fish until such time as they will move out of the stream and on down to the sea.

That is not the case in any other hatchery in

(Testimony of Donald L. McKernan.)

the State of Oregon, except the dubious position of the Marian Fork, where eventually that will be the case there.

But, even that's different, because there's considerable area in the North Santiam below the Detroit Dam that will be rearing area for younger than migratory fish; that is, fingerlings which may not be quite ready to migrate to sea.

So, there can be made no comparison, in my opinion, between the Metolius situation, and say, any of our other hatcheries in the State of Oregon, and the reason that we have asked for large holding facilities and rearing facilities is simply for the reason that those fish must be reared if the natural rearing area is taken out of production, which is the only thing, if it is completely successful, that can ameliorate the damages to that dam.

Presiding Examiner: Just a moment now.

With that explanation, do you still want the figures?

Mr. Phillips: I would still like the figures.

Presiding Examiner: You can make such arguments on that as you wish.

Can you get those figures, Mr. Witness?

The Witness: I can do my best. I suspect that I can, [1401] but I just won't be able to promise, because I'm just not certain. Some of our staff members will be at their lunch meeting, and I'm not sure if they're out of town, and I'm not just sure what condition the figures are in.

(Testimony of Donald L. McKernan.)

But, I believe I can and I will do my very best to.

Presiding Examiner: I don't think Mr. Phillips wants precision figures, necessarily; I think if he could get a good estimate it would probably be enough; isn't that right?

Mr. Phillips: A close estimate on the millions of fish eggs is good enough for me.

The Witness: Some of our best data, for example, on this, is in our hatchery research section, which is stationed at Bonneville, and this Mr. Tom McKee who is in charge of this section, is compiling quite accurate records of these things, and I will attempt to get in touch with him.

If I can't, then I'll have to go to the next best source and work it up in the rough.

Presiding Examiner: Well, you do what you can, reasonably. [1402]

Q. (By Mr. Phillips): Mr. McKernan, maybe I had better go through this report here, there are some things that I am going to have to come back to because they envelop upon this matter of other hatcheries.

Do I understand that made this report from pages 16 on?

A. I was primarily responsible for the report from page 16 on. Mr. Johnson assisted in certain parts of it, but I assume responsibility for that portion.

Q. If you will turn to page 17 you have the

(Testimony of Donald L. McKernan.)

estimates there on spring chinook salmon, is that right? A. Yes.

Q. Steelhead? A. Yes.

Q. Is that part of your report premised upon the same computation as Mr. Johnson testified about? A. Yes.

Q. You heard Mr. Johnson's testimony?

A. Yes.

Q. You have no further information more than what he gave? A. No.

Q. You don't make any count yourself?

A. Yes, I do make counts myself as I said before, but Mr. Johnson was responsible for the—for deriving these estimates primarily responsible on the Deschutes and I don't believe I could [1403] add anything of further value to the record.

Q. You are specially trained in Fish Biology?

A. Yes, sir.

Q. You have made counts for the State or Oregon?

A. And I have made counts in the state of Oregon.

Q. What is your formula for making counts?

A. Well——

Q. Or an estimate of this type?

A. I have the same answer as Mr. Johnson gave you. There is no specific formula like you would compute a kilowatt. You have to study the streams and consider the extent and use all the data at your command. The methods of Mr. Johnson as used are the general tools of our trade and they may not be

(Testimony of Donald L. McKernan.)

as good as you would like them to be, but they are the best we have in this situation.

Q. You have made a statement in the second paragraph there that "In years past much larger run utilized the watershed above the damsite, but has been depleted by reason of irrigation and diversions of some tributaries, and so forth." Who made that statement to you?

A. That probably was a joint statement of Mr. Johnson's and mine.

Q. What was it premised upon?

A. Upon the general knowledge, much of which Mr. Johnson mentioned to you before, Fish and Wildlife reports, our own [1404] observation in the area and observations also of the Game Commission, their biological personnel who make studies in that region.

Q. Did you get out of those various reports anything specific as to the number of salmon that used to be in the Deschutes River?

A. Nothing specific except that their salmon run used to be much greater.

Q. How long ago was that?

A. Oh, probably before say 1930.

Q. Before 1930?

A. Yes, something like that.

Q. That was before there were any dams in the Deschutes?

A. I am not sure. I don't know that it was before any dams in the Deschutes because I am not familiar with the specific history. I think we have

(Testimony of Donald L. McKernan.)

many of the histories of some of the dams in the Deschutes, but I don't have it here before me and I am not sure.

Q. You never checked the history of the dams in the Deschutes?

A. Yes, we have some information on it. I am not sure that we have complete information, however.

Q. Did you check the history of the irrigation appropriations in order to incorporate that in your statement?

A. No, we didn't incorporate it into our statement and we [1405] haven't specifically checked the history of those. We have obtained from time to time on various rivers in Oregon as much as we possibly can the history of the river development, because we are vitally interested in it of course, and we do try to keep records, but we have not checked specific history of the water appropriations of the Deschutes.

Q. Let me ask you this in order to understand. The statement contained in here on the salmon runs were diminished by reason of irrigation and diversions on some tributaries. Did you mean that or not?

A. Yes, sir, that I meant very much. For example, the Crooked——

Q. What did you premise this on?

A. On the Crooked River, the Squaw Creek from our own observations on I believe it was Shitike Creek and Fish and Wildlife Service

(Testimony of Donald L. McKernan.)

Observation and Game Commission's personnel observations.

Q. Did they take any water for irrigation out of Squaw Creek? A. I believe so.

Q. Whereabouts?

A. Above the town of Sisters in that general area.

Q. Did they take any water out of Shitike Creek for irrigation?

A. I don't know about irrigation on that, I am just speaking [1406] river development as a whole. Mr. Johnson read to you from his reports the dams, the Mill dams and I think he read two instances that are in the record of developments on the river which intend to reduce the accessibility of the stream, for salmon propagation. Of course, he did the same thing on the Crooked River.

Presiding Examiner: Mr. Phillips, I am having a little difficulty hearing you.

Mr. Phillips: I am sorry, I will speak louder, Mr. Examiner.

Presiding Examiner: This room has a different ceiling.

Q. (By Mr. Phillips): Now in another statement there is——

A. Excuse me. I can answer your question a little bit better in regards to Shitike Creek. On page 10 of the special scientific report of the U. S. Department of the Interior, Fish and Wildlife Service No. 38, page 10 again I repeat, regarding the Shitike Creek, the report in there reads there

(Testimony of Donald L. McKernan.)

are few low passable dams and some small unscreened irrigation diversions in the vicinity of the Indian Agency. Does that answer your question in that regard?

Q. Yes. Now, in another sentence in there where the Metolius River itself has had large runs in earlier years and as late as 1941 and 1942 there is ample evidence to indicate that the runs numbered several thousand fish.

A. I drew on Mr. Johnson's knowledge and the data acquired [1407] from review of all the available literature on the subject and from reports of the people living in the area.

Q. Do you think Mr. Johnson had some actual knowledge of the runs of 1941 and 1942?

A. I think that Mr. Johnson was able to gather knowledge, gather information on that, and again I would like to quote from page 11 of the special scientific report No. 38 in speaking of the Metolius River the Fish and Wildlife Service Report, speaking of the Metolius River. Chinook salmon spawn in the upper section while steelheads utilize suitable areas along the stream. It was reported that the runs in 1940 were the largest in the previous 20 years. Now this particular survey was taken June 21 and 22, 1942, by the Fish and Wildlife Service Biologists.

Q. Does it give any figures on how large the runs were in 1940?

A. They do not in this particular publication.

(Testimony of Donald L. McKernan.)

I am not sure if Mr. Johnson consulted them for the records of that or not.

Q. That covers the whole Deschutes?

A. This report covers the whole Deschutes. I quoted to you from the Metolius section.

Q. Does that include the large runs that go up the Warm Springs?

A. No, only reports from the Metolius River.

Q. Oh. [1408]

A. Again I repeat this is Section 1K Metolius River, June 21, 22, 1942, on page 11 of special scientific report No. 38.

Q. Now you have a computation down at the bottom of the page where you say that spring chinook salmon spawning in this stream—I presume that is the Metolius, I don't know—produce approximately $106,875 annually? A. Yes.

Q. How do you arrive at that computation?

A. I arrived at that computation using figures from Mr. Willis H. Rich and from our own tagging experiments which have indicated that the ratio of —attach to a statement was in the neighborhood of five to one, that is five fish were caught to one which escaped. Then I took the 2500 fish, the general estimate of chinook salmon and I multipled that by five which then gave me a figure of I believe —I believe it gave me a figure of perhaps 12,000, yes, I think 12,000 chinook salmon produced through the fishery annually and I multiplied that by 15 to give me the number of pounds and then I multiplied that particular figure by 57 cents

(Testimony of Donald L. McKernan.)

which the 57 cents was based on the first wholesale value of spring chinook and that gave me a figure of $106,875 annually.

I wish to point out that is—that that $875 annually is an indication of the accuracy which is not indicated in our method of computation. Normally we would run that off to say $900 because we are just not that accurate. [1409]

Q. How many fish actually did you use?

A. I think I can best answer that for the sake of brevity in quoting from Dr. Willis H. Rich contribution number seven of the Department of—Department of Research of the Commission of Oregon.

Q. How old a document is that?

A. 1943, on page 146 a portion of the summary, Item number seven. The intensity of the fishery for chinook, bluebacks and steelheads is measured by the ratio of the commercial catch to the escapement as calculated from the data given in the modified tables. For the May run of chinook it is shown that only one out of seven escapes the commercial fishery and is available for future maintenance of this run. From June and July, a period of great scarcity, only about one fish in six escapes and during the remainder of the run, August through December, the escapement is considerably better, but even at this time about twice as many fish are taken in the commercial fishery as remain to reproduce. These figures do not take into consideration the effect of the intensity of oceanic fishery which

(Testimony of Donald L. McKernan.)

would materially increase the catch and escapement ratio.

In general we modify the figures but slightly on the basis of our data which has been obtained in the last five years, four years really, since we started tagging.

Q. In order to get that figure, what figure did you use to represent the catch and the escapement?

A. We used in order to make this particular, Dr. Rich took the total catch of spring fish in the Columbia River. You see, the Deschutes fish would be considered as of May or June fish in the Columbia and Dr. Rich took the total catch in the Columbia River below Bonneville and he took the Bonneville count and that of course gave him the—knowing in addition or estimating the number of spring fish which went into the tributaries below, there are only two, there is another small run into the Sandy River, but primary down river runs, those that enter the tributaries down below Bonneville are in the Cowlitz and the Willamette. He of course estimated the size of those runs and the small run in to the Sandy and he added that particular figure on then to the Bonneville count and that gave—under the Bonneville count and on to the catch, the total catch below Bonneville. That, of course, then gave him the total population for spring chinook salmon entering the Columbia River.

From that then he subtracted the catch of spring chinook salmon below Bonneville plus the catch of spring chinook salmon above Bonneville and from

(Testimony of Donald L. McKernan.)

that it gave him the ratio then of catch to escapement.

Q. Let me inquire this figure of $106,875 annually, is that your figure or Dr. Rich's figure?

A. That is my figure.

Q. Well, I am asking you that irrespective of Dr. Rich there, how many fish did you use in computing that representing the catch [1411] and the escapement?

A. I used the average of somewhere around 87,000 fish going over Bonneville Dam except that it was for a specific year, now an average and the catch of fish in numbers below Bonneville and above and the number of fish going into the tributaries and that gave me a good estimate of the ratio of catch to escapement.

Q. But you pinned this right down to the Deschutes?

A. I used the Deschutes as an example of the spring run of salmon of May and June in the Columbia and I believe that I am thoroughly justified in doing that.

Q. What proportion of the Columbia River Fisheries did you attribute to the Deschutes?

A. I didn't have to attribute any.

Q. What would you attribute then?

A. What would I?

Q. What does the present salmon population in the Deschutes represent with respect to the Columbia River Fishery Program?

A. I think my answer would be in the same

(Testimony of Donald L. McKernan.)

general magnitude and general direction of Mr. Johnson's.

He of course made the estimates of the numbers of fish in here and I computed the value data from those. It is a very difficult thing, as Mr. Johnson has said, at more than one time on the witness stand, because right offhand, even knowing the count over Bonneville we don't have at our beck and call in numbers of fish the catch above Bonneville by the Indians for their [1412] subsistence as well as for the market and it is not an easy thing to do. It would be significant enough.

Q. The method of counting at Bonneville is a pretty effective method, isn't it?

A. It is fairly effective, but as Mr. Johnson pointed out it is subject to certain errors the same as any other estimate. A mistake in identification, the fish going back down over the spillway and coming over the fish counting device twice and other such things, but it is in general, we consider it a very good measure but it is not perfect by any means.

Q. Do you observe very many salmon coming down the spillway?

A. We know that quite a few, I shouldn't say quite a few but we know some do, because we have tagged fish above and had them recovered down below. [1413]

Q. (By Mr. Phillips): Well, I'm not quite sure that I understand what this figure you have here

(Testimony of Donald L. McKernan.)

of 106,000 represents; is that the Deschutes or the Metolius you're talking about there?

A. That's the Metolius.

Q. That's the Metolius. A. Yes.

Q. And those figures on the top of the page——

A. Excuse me, that's the Deschutes above the Pelton site.

Q. The Deschutes above the Pelton site?

A. Yes.

Q. I see.

A. And which is primarily Metolius; not, as Mr. Johnson pointed out, not——

Q. And the spawning areas up there, I think you testified before, were up there in the headwaters of the Metolius?

A. I'm not sure that I testified to that.

Q. Well, are they or not?

A. That's true; and I have observed them up there; some of them, not all of them. We were quite certain there were some spawning areas, some salmon spawning, all the way down the canyon.

Q. Did you ever observe them spawning?

A. No, I did not.

Q. Did any of your staff? [1414]

A. I'm not sure about that. Mr. Johnson would be more qualified, and I suspect that he answered that question for you. It was his staff, really, that did the work, and I simply reviewed their reports.

Q. By the canyon, do you mean the Metolius canyon or the Deschutes canyon?

A. The Deschutes Canyon.

(Testimony of Donald L. McKernan.)

Q. Did you ever observe any spawning above the Pelton site on the Deschutes?

A. Yes, I observed the spawning in the Metolius.

Q. Well, I mean in the Deschutes.

A. Oh, excuse me; no, I have not.

Q. Are there spawning areas above your hatchery or below your hatchery up there on the Metolius?

A. They're all along, both above and below.

Q. And which are most extensive, above or below? A. Below.

Q. Below.

A. Because your hatchery is located almost at the source.

Q And have you observed them spawning below?

A. Yes; not a great distance below, but some distance below; I haven't covered that area like our field crews have.

Q. Do you think Mr. Johnson's observations are about right?

A. I don't think Mr. Johnson meant to leave the impression that there were only 2 nests below; I think he specifically stated [1415] that he may have observed at one time or another, 2 nests below; but Mr. Johnson and I are very certain that there are many more than 2 nests below.

I'm sure that the record doesn't show that he stated that there were only 2 nests below, because that isn't what we believe.

(Testimony of Donald L. McKernan.)

Q. Well, I didn't say that. He observed 2 nests below; did you observe any more than that?

A. I actually was observing fish; and there were nests down below—and I think he said below the racks, not below the hatchery.

Q. Below the racks?

A. Well, that's quite a ways; you see, the racks are some distance below the hatchery. I'm not exactly certain whether my observations, which were before the racks were in, whether my observations are below or above the racks themselves, but they're in that vicinity.

Q. How far are your racks from the hatchery?

A. Oh, I don't recall offhand. I think they were moved the last year, and I didn't see them when they were moved, and I have not seen them yet this year. I will, undoubtedly, within the next short period, but I think they are a few hundred yards, I suppose, in the river below the hatchery. I'm just not certain, so that's why I'd rather not say.

Q. You'd say it's in the neighborhood of a few hundred [1416] yards?

A. Well, I'd rather not say.

Q. Do you transport the eggs—or, the fish, from the racks to the hatchery?

A. Well, yes; it's only a matter of a short distance, of course, and the green eggs will transport readily that short a distance; they have no difficulty with them.

Mr. Mason: Is it your answer that you take the eggs and transport them to the hatchery?

(Testimony of Donald L. McKernan.)

The Witness: Yes; that short distance we have no difficulty with them whatsoever; we do that same thing throughout the state.

Q. (By Mr. Phillips): You virtually take most of the run that you have there every year?

A. No, I wouldn't say that at all; I determined what the Commission policy was a year or two ago with regard to taking eggs in the Metolius River, and the Commission laid down a policy that they would not—that the Hatchery Division was not to take all of the salmon even approaching the racks, that they were to allow salmon to escape to spawn naturally.

That was the official Fish Commission position; insofar as I am aware, it has been observed. And, of course, we know that the majority of salmon are below our racks, or at least we feel very strongly that way, and that's our story. [1417]

Q. How many do you allow to escape at the Metolius hatchery?

A. I wouldn't know that. In general, the Commission has—in hatcheries throughout the state, even where the runs are small, attempt to allow about half of them to escape naturally.

Sometimes that's not quite possible, and perhaps fewer than half escape, or we know that in a great many cases we know that a great many more than half; but, the general position of the Commission is that our hatchery men are to allow half the fish, even in small years, small runs, to spawn naturally, and I'm not aware, and I cannot answer the ques-

(Testimony of Donald L. McKernan.)

tion, whether half of them have been allowed to spawn naturally up above the Metolius racks.

Q. Are you in charge of hatcheries, at all?

A. No, I'm not. I'm in charge of hatchery research, alone.

Q. Hatchery research? A. Yes.

Q. You don't know, then, how many escaped from the Metolius this year—or, rather, 1950?

A. No. Of course, this year the fish are just beginning to clear there, but I don't know how many escaped last year, although I would suspect that in our biological data that information is available.

Q. You did not bring that with you? [1418]

A. I did not bring it with me, nor have I examined it in preparation for this.

Q. Do you think the figure given by Mr. Johnson yesterday of 145 males and 51 females in 1950 is about the right figure?

A. I think he quoted that as the egg take.

Q. That's the number of fish.

A. No, that's the number of fish that were taken, if I'm not mistaken; that isn't the number of fish that were spawned and spawned naturally, by any manner or means; that's just the number that were handled at our racks.

Q. I see.

Does your rack go clear across the river?

A. Yes; but, it's easy to open because the racks are pickets, and a hole can be knocked in in about one minute, just knock the pickets loose and lay

(Testimony of Donald L. McKernan.)

them aside, and that's the usual procedure for our hatchery men.

Q. When you put one of those racks in the stream, do you have occasion to count those that escape, then?

A. Sometimes we do, but as Mr. Johnson answered to you, only when we have some specific purpose in mind. We don't always, because, of course, there aren't enough hours in the day or men on our staff to do that.

Q. Well isn't the counting of the fish one of the important elements that you take into consideration in your fishery work? [1419]

A. Estimation of populations is a very important tool used in fisheries management work; the specific counting of fish in racks is not the usual way of estimating fish population.

Q. No, but don't you premise it upon what is actually observed in the stream some place, either by counting or other means?

A. By other means; and in other cases, most cases, it is better to get estimates that take a fraction of the time than it would be to count at, for example, to hold a man all summer long at some rack to count the fish through it. It might be much better, and we have found it, as a matter of course, we have found it better; and we know that it gives us the general magnitude of the runs to estimate the number of fish on the spawning grounds; and we realize that in some instances the measure-

(Testimony of Donald L. McKernan.)

measure the reliability of our estimates with standard statistical procedure.

Q. What have you to show of the proof of infallibility of your estimates; what methods do you use at the present time in estimating that?

A. Well, I think we're getting into a field that was covered so thoroughly by Mr. Johnson that it would be simply repetitious for me, go over the same thing.

Mr. Johnson mentioned the work on the Umpqua; he mentioned our work on the Willamette River; he mentioned the work of [1420] the federal government which we have had access to in the upper Columbia River; and it seems a little bit repetitious to me to repeat these things, particularly when the counts were pretty well established by Mr. Johnson, and his particular counts were used by me in arriving at the values.

Q. I'm not asking you to repeat, Mr. McKernan, as to what Mr. Johnson testified to, and I agree with you that he testified about these various rivers; but, he did not testify in response to my question, and the same question, as to what proof they had to prove the adequacy or infallibility of your theories of estimating fish.

A. Well, he did testify to that to some extent, because he had data, and he mentioned the data and discussed it on the upper Umpqua River, where we tagged certain fish and counted total populations over the dam, and we knew what the total populations were and we knew what our tagged fish were,

(Testimony of Donald L. McKernan.)

and we knew how many we saw; and we could test the accuracy of our estimates on fish populations; and they tested out reasonably well. Sometimes they are high and sometimes they're low; the probability of them being high is equal to the probability of them being low, and I would say that the same, perhaps, was true on our estimates on the Deschutes River system.

Q. Did you have a counting of the fish?

A. We had a counting on the Umpqua; we had a counting on the Willamette Falls. [1421]

Q. And was a man stationed on the Umpqua?

A. A man was stationed—crews of men were stationed all the time on the Umpqua, counting fish.

Presiding Examiner: Have we reached a junction here?

Mr. Phillips: Yes, I can finish this in good time this afternoon, if you care to.

Presiding Examiner: I think it would be advisable to do so.

Can you give me any idea, knowing what you do now, how long you will be with Mr. McKernan?

Mr. Phillips: Well, I assume that Mr. McKernan is the only witness left; is my understanding of that correct?

Mr. Mason: It is my understanding.

Mr. Phillips: I have 3 very short rebuttal witnesses, and that will take just a few questions.

Presiding Examiner: Yes; about how long on Mr. McKernan from you?

(Testimony of Donald L. McKernan.)

Mr. Phillips: I think probably I can finish him up in a half hour.

Presiding Examiner: All right; and you?

Mr. Mason: Probably a half hour, maximum, depending on what Mr. Phillips covers. If he covers the subjects, of course I won't bring them up.

Mr. Phillips: If he could bring us his data with respect to hatchery capacity, we might shorten this very considerably. [1422]

Presiding Examiner: Now, let's see; I'm trying to get an idea of time.

We have a half hour from you—just an estimate, of course—on Mr. McKernan; a half hour from the Staff; that makes a total of an hour there. And then, your short rebuttal witnesses——

Mr. Phillips: It will take less than an hour.

Presiding Examiner: Half hour?

Mr. Phillips: I hope so, but I'm saying it will be less than an hour.

Presiding Examiner: Let's say a half hour, just for talking now; an hour and a half.

You asked for 30 minutes; is that right?

Mr. Bowles: I don't think I'll take any more than that, Mr. Examiner.

Presiding Examiner: That's a full 2 hours.

And what are your reservations?

Mr. Mason: 5:45, Standard Time—Daylight time.

Presiding Examiner: I just wanted to see that we're going to work it out here.

We will be in recess now until 1:45 in this room.

(Whereupon, at 12:35, a recess was taken until 1:45 o'clock p.m., of the same day.) [1423]

Afternoon Session, 1:45 o'clock

Presiding Examiner: I believe the witness who was being cross examined has not returned, but that doesn't matter too much because we can discuss now the problem that I laid before counsel earlier today with respect to the motion to waive the intermediate decision procedure; and I would be pleased to hear any expressions from any counsel on that matter now.

Mr. Phillips?

Mr. Phillips: Mr. Examiner, under the provisions of Section 1.30 of the Rules of the Federal Power Commission, at this time I would like to move that on behalf of the applicant that the intermediate decision by the Examiner in this cause be waived, and that the record be submitted directly to the Federal Power Commission; and on behalf of the applicant I would like to enter the waiver of the applicant at this time, providing, of course, that in accordance with the rules of the commission we be given an opportunity to present briefs, which we will be required to present anyway, and without waiving any rights to oral argument before the Commission.

Presiding Examiner: Did you have in mind briefs, or just proposed findings of fact?

Mr. Phillips: Well, whatever the Commission desires as far as that is concerned; we would like

to accommodate ourselves with the wishes of the Commission.

Presiding Examiner: Well, they will give you an opportunity [1424] to submit what you desire, either in the form of a brief or merely as proposed findings of fact and conclusions.

Mr. Phillips: Well, we would like to submit a brief and summary of the testimony together with a proposed finding and conclusions.

Presiding Examiner: Very well, thank you.

Now, Mr. Higgs, may I hear from you on behalf of the intervenors?

Mr. Higgs: If the Examiner please, on behalf of the State of Oregon, acting through the Oregon Fish Commission and the Oregon Game Commission, I wish to enter the intervenor's objection to the motion and move that the motion of the applicant that the intermediate procedure under Rule 1.30 of the Federal Power Commission be denied, and the State of Oregon does not join in, and objects to the granting of such motion.

Presiding Examiner: Well, that eliminates the automatic aspect of it, anyway.

Now, Mr. Bowles, can we hear from you?

Mr. Bowles: I wish to make my objection to that procedure, if the Examiner please, on the ground and for the reason that the only party who in this procedure will be competent to judge the demeanor and the attitude of the various witnesses will be the Trial Examiner here.

For that reason, I think his report would be of

extraordinary importance in this particular case.

Presiding Examiner: Thank you.

Mr. Mason, please, for the staff?

Mr. Mason: Mr. Examiner, in view of the objections raised, I don't think at this time it is necessary for me to take a position.

In any event, this motion will be forwarded to the Commission, as I understand it, for approval; is that correct?

Presiding Examiner: Yes, that is correct. The whole discussion we are having now will be before the Commission directly.

Mr. Mason: Therefore, when that motion reaches the Commission, my superiors there would really have to determine the matter, and would take a position at that time. I am not authorized to join in the motion at this time.

Mr. Phillips: Mr. Examiner, I would like to make the record clear that my motion was made on behalf of not only the Northwest Power Supply Company, as the original applicant, but the Portland General Electric Company, who joined in the second supplemental application.

Presiding Examiner: Thank you very much, Mr. Phillips.

The motion that you have made and the objections that have been entered to it, and the statement by the Staff counsel will all be forwarded to the Federal Power Commission as early as practicable, and you will in due course be notified as to the Commission's action with respect to that motion.

Mr. Higgs: Mr. Examiner, I wonder if I might at this time ask Mr. Phillips, attorney for the applicant:

Mr. Phillips, I have tried to get a copy of the original application in this case, and apparently my people do not have it. Are you in a position to furnish me with such copy? I have your second and third supplemental, but not the original.

Mr. Robins: We will give you one right now.

Mr. Mason: First and second supplemental.

Mr.Higgs: That's what I said.

Mr. Mason: I thought you said second and third.

Mr. Higgs: That's correct.

Mr. Phillips: You have the first and second supplement?

Mr. Higgs: Yes, I do.

Mr. Phillips: Well, we will give you General Robins' copy, then.

Mr. Higgs: Is this a gift, or just a loan?

Mr. Robins: It's a gift.

Presiding Examiner: You might add that that apparently doesn't include the exhibits, which are technical engineering drawings which ordinarily accompany it, but I suspect you don't want that.

Mr. Higgs: Well, you suspect right; I don't suppose I'd understand them if I saw them.

Presiding Examiner: Very well; that concludes that phase of the matter. [1427]

Mr. Mason: May I have one more word, Mr. Examiner?

I failed to state on the record that of course I'm

(Testimony of Donald L. McKernan.)

not going to return immediately to Washington, but I will forward immediately to my superior a recommendation with respect to the motion that was made today.

Presiding Examiner: The Examiner will not return immediately to Washington, but it will be forwarded on this coming Monday, at the beginning of the week, and be placed before the Commission.

Now, may we proceed with the remainder of your cross examination, Mr. Phillips, please?

Q. (By Mr. Phillips): Mr. McKernan, were you able to procure any records on the hatchery capacity of those hatcheries under the jurisdiction of the Fish Commission?

A. Yes, Mr. Phillips; I have before me estimates of the capacity of the hatcheries with regards to the number of eggs that can be accommodated in the various Fish Commission hatcheries.

Q. Will you give us those figures, then, by hatcheries?

A. Yes; these records are of various species of fish, and, of course, the methods of handling the various species of fish are considerably different—now, that is the requirements for rearing, for food and pond space, the length of time of rearing, and other features of hatchery operation are considerably [1428] different, depending upon the species and races of salmon involved.

Q. Yes.

A. Well, will that make any difference in how I give these?

(Testimony of Donald L. McKernan.)

Q. If you will just give me this list, then I'll cover that a little later.

A. All right; I will proceed down the Columbia River, and from the north section of the Oregon coast towards the south——

Q. I am wondering if there is any point, Mr. McKernan, in taking it so that it coordinates with the numbers in Exhibit 2?

A. I will be pleased to do so, Mr. Phillips.

Q. You have them all numbered there, like each station numbered—I suppose those hatcheries are all included in those numbers, are they not?

A. I will give them to you by number stations: McKenzie River, No. 1, has a capacity of 12 millions of eggs; the Middle Willamette has an egg capacity——

Q. That's No. 2, isn't it?

A. Middle Willamette, No. 2, yes, sir; pardon me—has an egg capacity of 10 millions of eggs; the North Santiam, station No. 3, has—had a capacity of 12 million eggs in the old station; the new station, at its present site at Marion Fork has a capacity of 18 millions—these are approximate figures. [1429]

Q. That's right.

A. ——by the way, and in some instances they can be crowded in, a few more eggs can be crowded in and perhaps the normal egg take is less; but, these are the general capacities as best I could obtain them.

Bonneville, Station No. 4, has a capacity of 20

(Testimony of Donald L. McKernan.)

millions of eggs; the Clatskanie Station No. 5, has a capacity of 4 millions of eggs; the Trask Station No. 6, has a capacity of 5 millions of eggs; the Coos Station No. 7, has a capacity of 10 millions of eggs; the South Santiam Station No. 10, has a capacity of 2 millions of eggs; the Ox Bow Station No. 12, has a capacity of 3 millions of eggs; the Alsea Station No. 13, has a capacity of 3 millions of eggs; the Siletz Station No. 19, has a capacity of 3 millions of eggs; the Foley Creek Station No. 16, has a capacity of 2 millions of eggs; the Tillasqua or Big Creek, No. 25, has a capacity of 3 millions of eggs; the Metolius Station No. 26, has a capacity of approximately 500,000 eggs at the present time; for a total capacity of approximately 95.5 millions of eggs.

Q. What is that total figure?

A. 95.5 millions of eggs.

Now, the problem involved in relating this to the Metolius is this: that the Metolius station will require the rearing until the normal time of downstream migration, the entire egg take because the rearing capacity of the Metolius River itself [1430] has been reduced to zero; thus, the entire run of the Metolius River salmon, and the cost computed from those have been based on rearing the entire run the full length of time that these young fish will remain in fresh water.

That is a condition which does not exist at any other station in the State of Oregon at the present time, right at this time. It will exist, as I wish to

(Testimony of Donald L. McKernan.)

make clear, in certain of the Willamette stations later, but does not exist right at the present time in the State of Oregon.

Q. Which of these stations, Mr. McKernan, are for the development of chinook salmon?

A. Chinook salmon?

Q. Yes.

A. Almost all of these stations are used to a greater or lesser extent for chinook salmon.

Q. All. Are there any of them that make a specialty of spring chinooks?

A. Yes, there are; the Willamette River stations, the Middle Willamette——

Q. Wait a minute; I wonder if I understand you on the Willamette stations—which ones are those?

A. I shall give their number, as I say, Mr. Phillips.

Q. All right.

A. The Middle Willamette, Station No. 2, the North Santiam Station No. 3, the South Santiam Station, No. 10, and the [1431] McKenzie Station No. 1.

Q. No. 1.

A. And, in these stations, again, a comparison cannot be made with the Metolius condition which will exist when the Pelton dam goes in, because tremendous amounts of natural rearing area occur, in which young fingerling can be placed without rearing them the full length of time required before they would migrate to the ocean, so that the cost of

(Testimony of Donald L. McKernan.)

rearing is much less in these stations than it will be in the Metolius.

Q. At what point in the life of the fryer fingerling do you place in the stream direct, the chinook salmon from the McKenzie and the Mid-Willamette, for instance?

A. In the case of the spring chinook salmon, we eliminate considerable numbers of these young after 2 or 3 months of rearing, into the upper tributaries in a certain selected area for renovating or improving the natural runs.

In the cases of other numbers of these fish, we rear them into a year plus age, the time that we consider to be the normal time of migration for the maximum survival in the sea; and there, again, I wish to point out, are the bases for our calculations on the Metolius, are that we will rear all the salmon to the time of normal migration to sea, which, of course, the river would do, were it still made available for the young fish.

Q. Of the 34 million eggs in the hatcheries which are devoted to spring chinook, how many of them do you rear to the [1432] full age?

A. I don't know that there's 34 million—I'm almost certain that never in recent years have we gotten 34 million eggs at these hatcheries; that is the hatchery capacity.

The capacity in eggs was the question that you asked me, and that's all that I gave you.

Q. Well, put it another way, then: approximately what proportion of your spring chinook

(Testimony of Donald L. McKernan.)

eggs, or the fingerlings from the spring chinook eggs, do you rear to a, I think you said roughly a year——

A. A year, plus.

Q. ——a year plus, for raising them?

A. It's been a very small percentage because of the difficulties that we've had in successfully rearing them. We are studying that very intensively at the present time through a diet experience, both at the Marion Fork hatchery and the Bonneville hatchery; we transport them to this hatchery in order to study the dietary course of these fish.

We found it very difficult to raise to a yearling size and a year plus size; to differentiate between those two in definition I would define a yearling size to the fall when they would be approximately 12 months of age from the time the eggs were deposited or eggs were taken, to distinguish that from a year plus size, the fish would be held until the following April or May, at which time there would be some 16 or 17 months, perhaps, from [1433] the time of deposition of eggs.

Now, we've been more or less experimenting with the rearing of these fish to that time, and our rearing program has included, oh, somewhere between a few hundred thousand and perhaps 2 millions of these fish reared to yearling or year plus size, in the past 3 or 4 years. We are testing the survival of these by large scale marking experiments, where we are clipping the fins of the young fingerlings as we liberate them from the hatchery, and we have in the last 2 years clipped the fins from perhaps

(Testimony of Donald L. McKernan.)

half a million spring chinook in order to learn just as rapidly as we can the various problems involved in obtaining the maximum survival; and we have actually liberated them at different times of the year.

But, from our studies so far we think we gain the—or, we're pretty sure that the maximum survival in the normal time for greatest survival is at a year plus on liberation from the hatchery. When we learn more about their food requirements, nutrition requirements, why, we will liberate more of them.

But, getting back to this specific question, because of that it's almost impossible for me to specify the percentage; it's a small percentage, would probably be somewhere, perhaps 10 per cent, or somewhere in that magnitude—I'm just trying to be helpful, because I really don't know the exact percentage.

Q. What food deficiencies do you find in the Marion Fork?

A. In Marion Fork we've had the best success that we've [1434] ever had this past year; we've only raised fish one season, and we consider our fish, our yearling fish that I believe are released right now from Marion Fork at this time, we consider them to be the most successful rearing that we have yet had on spring chinooks, though we don't know, really, what that success is until those fish return three and a half years hence. They were liberated this spring, you see.

(Testimony of Donald L. McKernan.)

Q. What success did you have on the McKenzie?

A. The only—fair success; and our attempts have been rather limited because of that. For the most of it, we plant most of the fish out at an early age in areas where we know there will be no competition between these hatchery reared fish and the ones which were spawned naturally. [1434-A]

Q. Are there any food deficiencies in the McKenzie?

A. There are nutritional requirements of salmon which we do not understand yet. When a food deficiency is developed we try and haul fingerlings too long in any hatchery. We have had some initial successes, but nothing that you would call complete success in providing good substantial diets which will keep fish for that length of time; spring chinook salmon for that length of time.

Q. Where is that, at the Willamette Hatchery?

A. Oakridge.

Q. On the main fork of the Willamette?

A. On Salmon Creek, a tributary to the Middle Willamette River. That is not the main river.

Q. You have had success up there?

A. Success so far as rearing fish has been wholly limited and we have not had the return from any of those yet, to really tell us our success.

Q. Just as a matter of curiosity and you don't need to elaborate on that, I don't know where the Ox Bow Hatchery is either.

A. That is at Herman Creek in the Main Columbit River in the Bonneville Pool. That is what is called the Ox Bow Hatchery.

(Testimony of Donald L. McKernan.)

Q. Mr. McKernan, the fact is that the spring chinook salmon is an experiment at this time, isn't it?

A. It is a little bit more than an experiment. I would say [1434-B] for example, in the North Santiam it is a matter of life and death. We either rear our salmon that normally go above the Detroit Dam or else we lose the run. We are carrying out intensive biological studies there and are doing everything that is possible and using at all times the very latest techniques that we possibly can in order to get an adequate survival of those fish perpetuate that run.

Q. What percentage of the North Santiam would you say, or what portion of the total count of the river fisheries is the or does the North Santiam Run?

A. That would take considerable calculations. Roughly for example, you take—you are taking in all species, aren't you? They are taking in bluebacks, chum salmon and steelhead.

Q. Well, we will make it spring chinook.

A. That is considerably easier, but it is not real easy at that. Roughly, the North Santiam River is approximately 20 per cent of the total Willamette Run. That is the North Santiam being a tributary to the Willamette. The Willamette Run normally is approximately ⅔ or even sometimes if you count over Bonneville, that is around 87,000, sometimes the north Santiam runs in 1946, I believe it was 55,000 roughly probably the Willamette run is half

(Testimony of Donald L. McKernan.)

of the whole Columbia Run, so that it would make 20 per cent—roughly 10 per cent of the total Columbia—No, I have omitted the Cowlitz. Perhaps a little less than 10 per cent of the total spring chinook in the Columbia. No, that wouldn't [1434-C] be quite right either. Probably somewhere less than 10 per cent, it is a little bit difficult for me to calculate right here. You see the difficulties, I hope, in the Sandy River.

Q. You are getting close to it.

A. Well, somewhere between 2 and 10 per cent probably.

Q. On the hatchery on the North Santiam, how many fingerlings do you release out there?

A. The North Santiam?

Q. Yes, from the hatchery.

A. Our conditions there have varied so tremendously up until this year we released—what is your definition of a fingerling?

Q. I don't know. I am taking your definition, whatever it is.

A. Well, I haven't used the term yet in that sense, because we liberate some villa fingerlings as well as some yearling fingerlings or one plus fingerlings.

Q. Well, make it all fingerlings. I think in your reports here that is the word fingerlings.

A. In the reports it just refers generally to fingerlings. In the North Santiam we liberate fingerlings of all types. We do not liberate in the summer time if we can help it.

(Testimony of Donald L. McKernan.)

Q. How many fingerlings do you keep up there then?

A. I think we can get that accurately from the records better than my guesses. This is the first year, 1950 was the [1434-D] first year that fingerlings have been held in the new Marion Fork Hatcheries. Prior to that time the fingerlings were held at all hatcheries down at Nehama, so that I am afraid these figures would not apply to our present status. I think that the—we intend to rear, when the North Santiam Hatchery is in full swing we intend to rear several million fish to yearling size.

Q. What do you estimate the annual cost in the North Santiam?

A. We don't know that yet and the way it is handled is this: We are doing that with the engineers on the basis that the cost during the first five year period will be—the first five year period after the full operation, and of course we are not in full operation by any means at the present time, we have only taken perhaps a small part of the run, so far, that will be taken when the dam blocks the stream so that it is absolutely impossible to judge what the annual cost will be. It will be tremendous however there. Although not as great as at the Metolius Fishery because we can liberate some young fish before migratory starts in the Santiam River because there rearing areas down below the Detroit Dam and there are no rearing areas for young fish, according to our best estimate below the

(Testimony of Donald L. McKernan.)

Metolius River—below the Pelton Site in the main Deschutes River.

Mr. Mason: Just a minute. You said engineers. Did you mean the Corps of Engineers?

The Witness: U. S. Corps of Engineers. [1434-E]

Q. (By Mr. Phillips): You can't give us anything on dollar costs up there? A. No.

Q. Did you estimate them at all?

A. I would estimate them on the same basis that I estimated the ones for the Metolius if I were to do so. I would consider how many pounds of fish we were going to use and what cost a pound of fish is to rear them to that size and I would base our annual estimates on that, believing that to be the very best possible estimate.

Q. Where do you get the money for that?

A. Where do we get the money? We get it from the Corps of Engineers.

Q. On the operation of your 15 hatcheries in 1950, if you have your report there of page 21, are my figures correct then when I say that you expended a total of $194,771.84 in the operation of the 15 hatcheries?

A. I don't know. I don't see that figure any place.

Q. Well, it is the combination of salaries and wages under the division of fish culture and artificial propagation. The salaries and wages are $117,053.46 and general operating and maintenance $77,718.28. Those are the two only operating figures.

A. Those are the only two operating figures, but

(Testimony of Donald L. McKernan.)

the cost of artificial propagation would include a capital outlay, a small capital outlay of equipment obtained during that period. [1434-F]

Q. Well, the outlay, I assume the capital outlay in your business is the same as any other business, isn't it?

A. I don't know if it is the same as any other business at all. I have no knowledge of any other business.

Capital outlay of the Fish Commission amounts to quite a few items, such as the things of automobile tires for example and boots, if I am not mistaken, such things that wear out. Anything that costs more than four or five dollars, by the way, I am a little bit out of my field. I am just giving you a guess on this.

Q. What would you do to increase the figure to take up the percentage of the depreciation on capital outlay?

A. That isn't all the capital outlay on the hatchery. Capital outlay values of the hatcheries would be tremendous, but the cost of the Division of Fish Culture for the year would include the items of capital outlay here.

Q. The state accounting system in its auditing department usually makes provision on their actual accounts as to operating expenses to include such items as depreciation, don't they?

A. I don't know that, Mr. Phillips, you are in a field that is unknown to me.

(Testimony of Donald L. McKernan.)

Q. It follows general accounting practices, as far as you know, does it not?

A. It is within the law pretty well.

Q. I am not sure that you answered my question. Would the [1434-G] combination of those items exclusive of the capital outlay, whether or not they are included as operating expense, but those items give you the amount that you have expended for the year ending June 30, 1950, for the operation of the 15 hatcheries?

A. For the operation and the maintenance, yes. That would be the figure.

Q. Now with respect to the Pelton Project have you given any consideration to the release of fingerlings any fry in the Warm Springs River?

A. Yes, we have given it considerable. We have given considerable thought to that and our thought is that it is a very—it would be a very very poor practice for this reason. That if the Warm Springs River is not now producing at its maximum productive capacity, which by the way we do not know whether it is or is not, but one of the limiting factors and perhaps one of the most important limiting factors in the productivity of any stream system is the production of young fingerlings. That is any particular stretch of river in any particular area of the state in tradition can rear so many young fingerlings.

Now, if we release a million or two or three million additional fry into that already fully populated area, I am sure it must be plain that we would not

(Testimony of Donald L. McKernan.)

increase the survival of young going down stream because the maximum number that can be produced by that stream is a certain amount. There is biological evidence that a stream can produce only so many fish, so many pounds of food. [1434-H] There is considerable evidence that any particular environment or universe has a maximum productive capacity. It is a well known feature in a well known thesis that is used everywhere in population dynamics.

Q. Upon the North Santiam, you want to keep them there until they are yearlings so to speak?

A. Where was this?

Q. On the North Santiam?

A. Do we keep them there?

Q. I say you have them there in ponds?

A. We don't rear them for a year at the present time. Many of them are only rearing a small proportion of it.

Q. When you get full operation up there you will rear them for a year in the ponds, is that right? A. Yes.

Q. Would it be possible to provide rearing ponds below the Pelton Project on the Deschutes? Hold them for the same period of time and let them go to sea?

A. We would have to feed them there as we would have to feed them at the Metolius basin and the water conditions are—will be definitely inferior from the Metolius water supply for the hatchery at Metolius is in my opinion the best water supply

(Testimony of Donald L. McKernan.)

I have ever seen in the northwest and I have seen hatchery water supplies from California to British Columbia and I consider that spring fed stream is the best hatchery water supply that I have [1434-I] ever seen.

It is so far superior to anything that we could get at the Pelton site that I would be very reluctant to propose to our Commission that we do anything but use that marvelous water supply under any conditions.

Q. You know what deficiency there would be in the water below the Pelton Site?

A. There would be a great many deficiencies with the present Pelton Dam. For one thing we are not sure of the suitability of the water behind the dam for the rearing of the fish. I think you all remember the testimony of Mr. Riddell regarding the success of below Ariel Dam in which case there was noted by Mr. Smith in previous studies that there was some toxic elements which developed which we don't understand fully. Most important of all or more important than that, there are two other factors.

The temperature that occurs below the dam would be warmer and above the optimum temperature tolerances of the fingerlings which are used to being reared in temperatures in springs 45 and 50 degrees. That is one of the factors.

The other factor is the problem of disease. There are native populations of fish and—in the Deschutes and the Metolius Rivers, trout especially, which by

(Testimony of Donald L. McKernan.)

the way are a notorious carrier of bugs and diseases of all types and salmon do not seem, are more susceptible, less able to survive in any of these diseases. We have a much more serious problem of disease control below the [1434-J] Pelton Site. We would have warmer temperatures below the Pelton Site and we would not be certain of the quality of the water involved coming from the reservoir itself.

Q. Do you have the trout up in the Metolius too?

A. I beg your pardon.

Q. Trout, do they come up in the Metolius?

A. Yes. They do not go into our water supply for our hatchery.

Q. They are still in the Metolius River?

A. But they are not above—oh, yes, and the natural spawn fish in the Metolius is above them and around them, but of course, remember, Mr. Phillips, that in a hatchery pond you have a concentration of several times, several thousand times in density in the density that the fish are in, that is, hatchery ponds have to have a fish every few cubic centimeters, where in nature they have to have several thousand times that much and the same situation may be pointed out with regard to human population. Human populations are very crowded and are very much more apt to ravage by epidemics and in the case of fish population, ebizoties are much more common in hatchery populations than ever occur in natural populations because of the crowed conditions in the pond.

Q. Do the trout go up the Warm Springs River?

(Testimony of Donald L. McKernan.)

A. Yes.

Q. Have you ever seen any epidemics on the Warm Springs [1435] or the Metolius or the Deschutes?

A. No, I haven't, but occasionally they occur in natural conditions especially in lakes where overcrowding of the populations occur. That is where the population density gets too great then these epidemics occur.

In the case normally in nature the fish just aren't so crowded to get those conditions. In hatchery ponds of course you have quite a condition.

Q. In hatchery conditions you keep the trout out, don't you? A. In artificial ponds?

Q. Yes.

A. In artificial rearing ponds we keep the trout out. [1436]

Q. Do you suggest the elimination of trout on the Deschutes and fish the salmon runs there?

A. No, I do not.

Q. Do they carry bugs?

A. They carry bugs, but still the density of the salmon population and the trout population is so small that there is very little danger, once we liberate our fish, of them starting or being subjected to heavy infestations of disease organisms.

Now, I do definitely recommend that in our hatchery water supply we eliminate all trout and all fish of any species, salmon, too, or young salmon; and we do that, Mr. Phillips, to the very best of our ability; we eliminate all fish from our hatchery water supplies for that particular reason.

(Testimony of Donald L. McKernan.)

By the way, it's a common practice, and practiced everywhere.

Q. In your opinion, the present population, both trout and salmon, is small in the Deschutes?

A. No, I didn't say that at all.

Q. Maybe I misunderstood you.

A. I think you must have, because all I'm saying is that anywhere any natural population, the density is much less than it is in the hatchery.

Q. I see; that's what you meant.

A. That's what I meant.

Q. Now, Mr. Riddell in his testimony gave some charts, there; did you ever see those charts? [1437]

A. Oh, I glanced at them, I think; I don't have them before me, of course.

Q. What does pH mean?

A. pH is the negative logarithm of the hydrogen ion concentration; it's a measure of acidity.

Mr. Mason: I am going to ask Mr. Phillips if he is going into that exhibit in detail, to instruct the witness to not testify on that.

Mr. Phillips: No.

Q. (By Mr. Phillips): On your acidity pH, on your unit of measure, what is neutral?

A. Seven.

Q. That's all I wanted to know on that one.

Mr. Mason: While there is a question not being asked, Mr. Examiner, in the interest of time, this is not my witness, but I suggest we could move along a lot faster if Mr. McKernan would answer the question and then wait to see if Mr. Phillips

(Testimony of Donald L. McKernan.)

wants an explanation of any kind or not. It's pretty hard to stop him once he gets started.

Some points you have covered 3 or 4 times in your explanation, and I'm very interested in getting through today. I would appreciate it if you would bear that in mind.

Presiding Examiner: I think more specific questions would get more specific answers. [1438]

Mr. Mason: He has had specific questions, did he consider something; all he had to say was yes or no, and he talks five minutes and says he considered it.

Of course, I know he is entitled to his explanation on a question on occasion, but not on every one, Mr. Examiner.

Q. (By Mr. Phillips): Now, with respect to the Deschutes River below the Pelton site, Mr. McKernan, isn't it a fact that you would have the benefit, so far as the food for fish is concerned, of drawing upon all the watersheds in all the forks of the Deschutes above that point, if they were reared below the dam?

A. No, that would not be a fact.

Q. Where does the food go?

A. I presume that calls for an explanation?

Presiding Examiner: It does.

A. The food; most of the food organisms are actually attached, that the trout eat; and these aquatic insects' larvae are attached to the underside and the topside of rocks, and as they hatch and the adult forms come free from some pupae stages,

(Testimony of Donald L. McKernan.)

insect larvae stages, they come up through the water and are eaten by the young fish; and then the adult flies off into the air if he is not eaten. At any rate, he does not come down the stream. In the stream there is very little floating platonic foods that are utilized by trout, and it is not so very likely the amount of natural food would not be appreciably greater at [1439] the Pelton site than it would be in the Metolius to fish in ponds.

In addition to that, the fish are so concentrated in ponds that natural food has very little bearing upon their general welfare. Food must be fed artificially; you can't expect them to prosper with natural food alone.

Q. How do they get along after they get on another diet after you turn them loose?

A. Well, insofar as possible, we find that they get along much better if we provide a diet that is as close to being what they will receive in nature as is possible; and we think some of our errors have been because the diet does not closely approach the natural food that is eaten.

Q. That is a subject upon which you are not certain at the present time; isn't that a fact?

A. I don't quite understand.

Q. That is, you have a lot more to learn about food and what kind of food to feed the fish?

A. We have a great deal to learn, yes.

Q. What about the water temperatures below the Pelton site?

Mr. Mason: What about them, Mr. Phillips?

(Testimony of Donald L. McKernan.)

Presiding Examiner: Is that a question?

Mr. Phillips: Excuse me. Let me ask a qualifying question.

Q. (By Mr. Phillips): Have you made any measurement of water temperatures behind dam sites? A. Yes, I have.

Q. And how do you take those?

A. I usually take them with a thermometer.

Q. What kind of a thermometer?

A. Either a regular field pocket thermometer which has been calibrated, or else a laboratory thermometer which has been calibrated.

Q. And whereabouts have you taken these temperatures?

A. I have taken temperatures in streams, in many of the streams—not most, but many of the streams of Oregon; I have taken temperatures behind dams, at old Cottage Cove Dam, and Bear Creek Dam near Astoria—I think I mentioned that in direct examination yesterday—and I have studied and am familiar with the literature throughout the United States and Canada, and to some extent in Europe, on temperature studies in impoundments and the effects of these on fish life.

Presiding Examiner: Mr. Phillips, what is the basis for your examination on the question of temperatures, here? Has the witness testified either——

Mr. Phillips: Yes, he testified on direct examination——

(Testimony of Donald L. McKernan.)

The Witness: I did testify on direct examination.

Presiding Examiner: Thank you; I wasn't sure about that. [1441]

Q. (By Mr. Phillips): How deep do you take these temperatures behind the dams?

A. They are usually taken at all depths.

Q. In taking the deep temperature, what kind of a devise do you use?

A. There are several devices that can be used; one of the common ones is a reversing thermometer.

Mr. Higgs: What was that?

The Witness: A reversing thermometer; that's a thermometer that goes down to any particular depth, then is reversed, is flopped over and the mercury column then registers the temperature at that particular depth, and the mercury column does not change; and you pull it to the surface and read the temperature at that particular depth.

Q. (By Mr. Phillips): It is a fact, in a pool behind a very high dam, that the temperature at the bottom is cooler than at the top?

A. Not always; that's not a fact.

Q. How high a dam, or what depth of pool, whichever way you want to take it, is required to make the water stratify?

A. That depends on a great many things, Mr. Phillips, and it varies so very much that there are no general conditions that can be set up.

For example, dams don't even act alike; in lakes the conditions are fairly steady, but in dams there

(Testimony of Donald L. McKernan.)

are no general [1442] conditions that are set up and no general real depths that you can specify —and I think I can prove that.

Q. From your own experience?

A. From published data of biologists whom I have talked to——

Q. Well, if you haven't had any experience in it, I'll pass that one, then.

Now, Mr. McKernan, you gave us an estimate of some year and a half ago of your costs of operation of the hatchery on the Metolius, which is in this record as Exhibit 12, in which you estimated the cost then of a maximum of $295,000, including $40,000 for liberation trucks.

A. May I see that? I'm not sure that I'm familiar with it.

Mr. Mason: Is that Exhibit 12, Mr. Phillips?

Mr. Phillips: Exhibit 12.

The Witness: Yes, I obviously got this up, and it looks familiar to me now.

Q. (By Mr. Phillips): And that was before the plans were amended to include the re-regulating dam, and an additional sum for cost of hatchery; is that not true?

A. Yes. This was done in October; this was submitted October, 1949. My estimate was obviously written some time before that time. [1443]

Q. Now, in your statement, here, you have moved that estimate up to $500,000; what makes up the $500,000?

(Testimony of Donald L. McKernan.)

A. I think I mentioned two different costs; on page 18 of Exhibit No.—what is it?

Mr. Mason: No. 31.

A. ——on page 18 of Exhibit No. 31, the next to the last sentence at the bottom of the page, third line up, I say that, "in addition, the annual operating and maintenance expenses between 300,000 and 500,000 was estimated"; and then back on page 22 of the same exhibit, I mentioned another and probably more precise method of computing costs of annual operation include the following data.

So, I did it two different ways, Mr. Phillips. In one particular instance, the one that I submitted to you in the earlier instance, I came out with an answer of about $295,000.

In a later and more precise one, which I did only recently, I came out with an estimate of about $495,000, including the $40,000 for the egg takes; now, do you wish me to explain how I got those?

Q. Now, just a minute; look on page 23, at the bottom of the page. A. Yes.

Q. Where you say that the most accurate minimum operating cost would be approximately $500,000.

A. I wish to call attention again to page 22, the last— [1444] the first sentence of the last paragraph; "another and probably more precise," so my statement down here, "thus the most accurate minimum operating cost is about $500,000";

(Testimony of Donald L. McKernan.)

but the sentence above on page 22 reads, "since the experience of these projects was utilized in making the estimate of 300 to 500 thousand dollars, the Fish Commission feels that the $100,000 sum is definitely low."

Q. And how many eggs would that contemplate in the hatchery?

A. Fourteen and a half million, Mr. Phillips.

Q. And how many fish would it take in the Metolius River to produce 14 and a half million eggs?

A. Twenty-five hundred spring chinook salmon, and 5,000 steelheads.

Q. Do you mean by that 2,500 females, or total number of fish?

A. Total number of fish, 2,500 fish; 50 per cent of which would be females, and 50 per cent of which we would assume to be males; the same applies to the 5,000 steelhead figure.

Q. It's never run 50 per cent on females so far, have you?

A. No, we haven't; that's correct.

Q. I'd wonder if you could give us a breakdown of the figure of $500,000?

What are the items; have you got your work sheets? [1445]

A. I'm sure I have the data with me with which to do that; refer to Table 2 on page 23 of Exhibit 31, which was the basis for this estimate.

I took some production and operating cost figures of new—these are new Fish and Wildlife Service

(Testimony of Donald L. McKernan.)

hatcheries in Washington and Oregon—now, the title of their table was California and Idaho. I, of course, eliminated the hatcheries which didn't have spring chinook, you see, or blueback; and I used all of the data which was provided to me, which included in the rearing spring chinook and blueback, alone; and those hatcheries are included in this Table 2, page 23.

Then, I quite easily obtained from their table—they had already computed it—these figures of, for example, in the Entiat River in Washington, in 1945 it cost a dollar to raise a pound of fish, and so on, clear down the line for the other hatcheries.

Now, I averaged those, using an unweighted average of those, and arrived at a value of $1.35 per pound cost to produce fingerlings.

Then, as in the document which I submitted to you, which I believe you called Exhibit No. 12, I took the 340,000 pounds which we intend to rear, which we will have to rear if the Pelton Dam is constructed, and I multiplied that by $1.35, and that gave me a figure of about $455,000, if my memory serves me correct, to which I added $40,000 as the cost of the egg [1446] taking station, and adding that together makes $495,000 annual cost.

Then, I went back—and I see that I figured food cost at 5 cents per pound, you see, in 1949—and I know in document No. 12, on page 2 of document No. 12, the middle of the page, it says "food costing five cents per pound will cost $85,000 annually."

(Testimony of Donald L. McKernan.)

Well, food costs for our hatcheries have gone up tremendously, and figuring from Fish and Wildlife Service costs in these recent years, their costs run in the Entiat, 1949, 11 cents per pound; Leavenworth, 10.7 cents per pound; Winthrop, 10.6 cents per pound. In our own stations, this estimate is about seven cents per pound at the present time.

So, I re-estimated this on that basis, and I come out with about the same; it will cost approximately $500,000 on the basis of seven cents per pound, now —I had that figure someplace here; I don't see where it is right now.

Q. I know where the Entiat Hatchery is, but for my information, where is the Leavenworth Hatchery over in Washington?

A. The Leavenworth Hatchery is over near the town of Leavenworth, on a tributary of the Columbia River, the Wenatchee River.

Q. The Wenatchee River? A. Yes.

Q. And Winthrop is up on the Okanogan River. [1447] A. Yes.

Q. How many hatcheries——

A. It's the Methow.

Q. It's the Methow, in Okanogan County?

A. Yes.

Q. How many hatcheries did they list in their tabulation that you used there, you picked out three hatcheries from?

A. They listed: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10.

Q. And how many pounds of fingerlings would

(Testimony of Donald L. McKernan.)

you expect to produce from the Metolius Hatchery on the basis of 14 million eggs?

A. 340,000 pounds.

Q. 340,000 pounds? A. Yes. [1448]

Q. Assuming that the Pelton Site was not built and you were using that hatchery capacity of 14 million eggs, how much would it cost to operate that hatchery?

A. If the Pelton Dam were not built, we would never put in or at least I would never recommend a hatchery of 14 million eggs.

Q. What would you recommend?

A. A hatchery of considerably less than that. There would be no need for a hatchery that large. We would have a hatchery to use as a supplement to rehabilitate the river system not to maintain the entire river.

Q. Well, is Mr. Suomela's letter wrong that I gave you this morning when he said that it should hold 12 million eggs?

A. That may be right. Of course, that is Mr. Suomela's letter and not mine and of course that is not 14 and a half million eggs.

Q. No, it is 12 million. How much would it cost to operate that?

A. It would cost considerably less than this, but it would still be very very expensive. It would cost less because we wouldn't have to rear the fish to such a large size. Most of them we could liberate in the Upper Metolius River and they would distribute themselves throughout the stream

(Testimony of Donald L. McKernan.)

and feed on the natural food, so it would cost way less than this. But, it would still cost a lot of money. [1449]

Q. How much overcrowding on that stream would you have then?

A. We wouldn't have so very much very likely, furthermore we would put them into other tributaries. We would put them into the main Deschutes where there apparently are no spring chinook below the falls and above the falls. We could put them in clear on up the Deschutes River up as far as we wanted to go because young fish—the falls are relatively small and the young fish could distribute themselves and use the whole main Deschutes area for a rearing point.

Q. How would you take them up there?

A. By truck.

Q. Tank truck?

A. Yes. Small quantities of them, of course, but we would still take them up there.

Q. That would be about a 50 mile haul up there, wouldn't it?

A. Oh, no, some of them would only be a few miles.

Q. You are taking them up to the Upper Deschutes?

A. I said we could distribute there.

Q. Do you have any rough idea what it costs to operate your hatchery on that basis without the Pelton Dam?

A. No, I have no estimate of that.

(Testimony of Donald L. McKernan.)

Q. Can you give us any rough figure at all?

A. No, I can't. I would have to go over calculations because the way I would do that would be to estimate the number [1450] of pounds of fish that we wished to produce there in a year.

If we were going to produce the 100 thousand pounds then I would multiply a hundred times a dollar thirty five.

Q. Can you get any rough idea of it, on what you contemplate doing on your pond fish to bring it up to a million two hundred thousand fingerlings, that is your first step, isn't it?

A. That is our first step as I recall. I don't know where you get that figure, but I presume it is all right.

Q. It is on page 16 of your statement.

A. Oh, fine.

Presiding Examiner: Do you have much more, Mr. Phillips?

Mr. Phillips: I am almost finished.

Presiding Examiner: You are almost 20 minutes now behind your schedule here.

The Witness: What was your question, please?

Q. (By Mr. Phillips): You would be expending two hundred thousand dollars additional in your budget there. How much would that bring your hatchery operating costs up? What figure?

A. That would be roughly about 30 per pound that would be about 40,000 pounds, that would be roughly around $75,000, I would guess, at $1.35 a pound for 40,000 pounds.

(Testimony of Donald L. McKernan.)

Q. About $75,000? A. Roughly.

Q. That is what I want, a rough guess. [1451]

In these three examples that you used, did you find anything in the wildlife report about it?

A. No, they only have a very small hatchery in Oregon which has fall-spring chinook.

Q. They are contemplating another hatchery, are they not?

A. I am not sure. I do not know.

Q. Haven't you collaborated with them on a 50 million egg hatchery at the mouth of the Deschutes?

A. No, so far as I know they do not contemplate a 50 million egg hatchery at the mouth of the Deschutes.

Q. You haven't been in those negotiations?

A. I don't think there are any negotiations, that is, to that effect.

Q. Just a few questions with respect to the Pelton Site. You have never attempted to make any count of salmon in the Deschutes at the Pelton Site, have you?

A. I think Mr. Johnson has covered that thoroughly, no. We would like to though if you would put a weir in there for us. We would be glad to count them.

Q. What I wanted to ask you, why hadn't the Fish Commission in view of the fact that this matter has been pending for two years, and you are putting a substantial investment up there and expect to build a hatchery up to 14 million eggs,

(Testimony of Donald L. McKernan.)

or 12 million eggs, according to Mr. Suomela, irrespective of whether the dam is built, or even if not built, why haven't you made measurements [1452] there by an accurate method of counting through a weir.

A. I am very glad you asked me that question. I would like to answer that in this way: In the first place, your own testimony indicated that you had decided the idea of even putting in a dam on the Deschutes River until certain changes were made by the Federal Government and the present war emergency arose. That is one of the reasons why our studies, the intensity of our studies lagged to some extent. Because, the critical nature of the Deschutes was passed.

You gentlemen yourselves indicated apparently, in the testimony here, that you did not continue your consideration of building the Pelton Site until only recently again. That is one reason why we haven't——

Q. Just a moment. The first time you knew that was when you heard our testimony?

A. No, I knew it before and that is why our studies had not been so intense. You have not allowed me to answer your previous testimony—question.

Q. Haven't the officers of the Northwest Power Company and Portland General Electric Company been in conference with the Fish Commission including you on this matter for some time?

A. Only about the last six months, at which

(Testimony of Donald L. McKernan.)

time there was no opportunity to carry on further studies of salmon numbers in the Metolius. That must be done during the summer and fall.

Mr. Higgs: Mr. Examiner, I insist that the witness be permitted [1453] to complete his answer to the previous question of Mr. Phillips. He has been interrupting the witness and injecting another question apparently when—I want him to have the privilege of completing his answer to that previous question. Have you done so, Mr. McKernan?

The Witness: No, I haven't.

Mr. Higgs: You go ahead and complete it unless the Examiner says you may not.

Presiding Examiner: Go ahead, but let's please attempt to avoid these argumentative aspects here.

The Witness: Yes, this question takes considerable discussion unfortunately and I feel it is necessary to clear it up.

Now, we have dams proposed on almost every major tributary and watershed in the State of Oregon. There are exceptions to that including the coastal rivers. The Army Engineers now have preliminary plans on those and without funds and staff of around 20 full time research men it is out of the question, that we should put in weirs everywhere and maintain men at these weirs. Particularly when we have fairly good methods of estimating the salmon population. We have done that on the Deschutes River to the best of our ability.

(Testimony of Donald L. McKernan.)

It may not be that that particular method and so forth pleases either the Commission or Mr. Phillips, but we have done our best with the facilities at our command to do that and now that this has come up, we will of course justify our efforts —we will [1454] intensify our efforts again.

This summer and fall will be the first opportunity since the applicant reinstated their request to construct this dam. It will be the first opportunity that we have had. We have had no opportunity in the interim to do so, but now, of course, we will intensify our efforts in an attempt to get the right data.

Q. In respect to this hatchery at the mouth of the Deschutes, are you familiar with the Appendix P of the Fish and Wildlife? A. Yes.

Q. Would you look on page 41 of it concerning a hatchery by a possible construction of The Dalles and John Day Dams.

A. Excuse me. Where are you, sir?

Q. Page 41. Right at the top of the page.

A. I see the passage and it says besides the facilities for the passing of migrating fish it is foreseen that the provision would be needed for a hatchery to accommodate approximately 25 thousand adult salmon and 50 million eggs.

That still does not mean that there has been any negotiations carried on for constructing a hatchery there.

I am positive that there is not contemplated at the present time by our department, insofar as I

(Testimony of Donald L. McKernan.)

know, by the Fish and Wildlife Service for a hatchery there.

As a matter of fact, Congress turned down plans for The [1455] Dalles Dam. That was recently and there has been no more consideration of The Dalles since then.

Q. Will you read the rest of the paragraph for the record.

A. The purpose of this hatchery would be a partial compensation for the expected loss to anadromous fish for the construction of The Dalles and the John Day Dam. Inasmuch as the Deschutes River located near The Dalles Dam where reasonably good water condition could be obtained, transportation held to a minimum, and it is recommended that the hatchery be constructed on the Lower Deschutes. That hatchery facilities should not be needed at the John Day Dam Site.

There have still not been any negotiations carried on this construction of a hatchery in the Lower Deschutes according to my best information.

Q. I think there is only one other question and that can you give us any estimate at all on the —percentagewise—on the portion of the Columbia River Fisheries represented by the salmon runs in the Deschutes?

A. I am afraid I can't help you any more than Mr. Johnson.

Q. You can't do that?

A. Mr. Johnson has been in charge of that work

(Testimony of Donald L. McKernan.)

and is much more capable than I am of answering that question.

Q. He has had more experience in fish biology than you have?

A. No, he hasn't, but he has had more experience in the [1456] Columbia River.

Mr. Phillips: I think that is all.

Presiding Examiner: Any redirect?

Mr. Higgs: I have a few questions.

Mr. Mason: I have a few.

Mr. Higgs: I am sorry. I didn't think you had any more questions.

Q. (By Mr. Mason): Mr. McKernan, there is no where in the record that I know of where there is a description of the fish facilities that this company has proposed as part of the Pelton Project. Could you give us that without going into too much detail?

A. I understand that was Exhibit No. 12 and that does include the general facilities estimations that might save you some time.

Q. Does that exhibit also explain the operations?

A. It does contain the original plan of operation for—it would cost $295,000 per year.

Q. I mean physical operations.

A. All I inclosed was a general nature of our operations. Not specific, but the general operations, yes. That is on the second page of that, Mr. Mason. You will notice——

Q. I see it now. Will you go to Exhibit No. 31, please. A. Yes.

(Testimony of Donald L. McKernan.)

Q. Page 17. Do you have that before you? [1457]

A. Yes.

Q. On page 17 the last paragraph, you indicate a potential annual value to be a million dollars. Do you find that? A. Yes, I do.

Q. Was that applied to the area above Pelton Dam Site only? A. Yes.

Q. What do you base that on the fact that at the present time our estimates of the values of these runs, the first wholesale value is $177,000. Furthermore, I know that the Columbia River Spring Chinooks have declined to the extent of about being 1/20th of their former—that is of supplying about 1/20th of their former production and knowing their general plans for our hatchery and the status of fisheries research in the northwest on it and other hatcheries facilities and hatchery management, I have estimated that by a full use of the hatchery capacities of those streams at the headwaters of the Metolius, plus the full utilization of the natural spawning grounds which are underutilized we could at least get better than five times the present total value. That is the basis.

Q. With this potential annual value of one million dollars on the estimated number of fish in the spawning grounds——

A. Based on an estimate of a survival to the sea of about two million fingerlings from both natural and the hatchery operations [1458] which would add a survival of about five per cent and that would give us 100,000 adults. 100,000 adults

(Testimony of Donald L. McKernan.)

would provide about 80,000 caught and 20,000 escape. That would give us pretty close to the value of the spring chinook that we estimated there.

Q. 100,000 is all spring chinook then?

A. The 100,000 is spring chinook and the additional around 300,000 I estimated would be the improvement plus the present output of steelhead, which as you will notice is about $70,500. [1459]

Q. You said 200,000; what did you mean by that, did you mean to say 300,000?

A. I'm sorry; I don't think I said 300,000 but what I said was I estimated two million fingerling would successfully pass down to sea from the Metolius, of chinooks; and those two million fingerling had a survival rate of five per cent, would produce 100,000 adults.

Q. I understand that; then, after that I asked you was that 100,000 spring chinook, and you said yes; and I asked you did you take into consideration any other species or race.

A. Yes, the steelhead; in the steelhead I estimated the potential, plus the present production, would be in the neighborhood of $300,000; and I estimated that on about the same basis as I estimated this.

Q. That was the 300,000 I didn't understand.

A. I see; I'm sorry.

Q. Will you refer to page 18 of Exhibit 31, Table 1? A. Yes.

Q. There on Table 1 you have an estimate of

(Testimony of Donald L. McKernan.)

steelhead costs; how did you arrive at that estimate?

A. I arrived at that using a five to one ratio, catch to escape, that I described in answer to a question by Mr. Phillips previously; and that may be found——

Q. Talking about steelheads?

A. I'm sorry, Mr. Mason; I said chinook. I considered [1460] an estimate of 2.2 to 1, which is the best estimate of catch to escapement that is possible, and——

Q. How did you get that?

A. I got that from Dr. Rich's 1938 report of the Columbia River Fish Commission contribution No. 7; that, plus some additional tagging information that we have fairly recently derived for the Deschutes and other particular rivers which gave us the best ratio value of catch to escapement of summer steelhead in the Columbia River, of 2.2.

Q. How do you know that ratio applies directly to the Deschutes River?

A. Because we know that the runs of fish in the Columbia River to which this does apply contains Deschutes River fish, because we tagged fish in that particular period and some of them appeared in the Deschutes.

Q. Well, what I am trying to get at, how did you determine that this exact ratio that you used on steelheads was applicable to the Deschutes River?

A. The only method, Mr. Mason, that we have,

(Testimony of Donald L. McKernan.)

in either chinook or steelhead, the only possible measure and one which I'm certain is fully justified according to scientific procedure, is, we know—these runs are mixed up in the Columbia, I'm sure you know that; they are mixed up with other runs at the same time—and what we did, now, we tagged a number of these fish at various times during the year, and we found that the Deschutes [1461] fish went through the main Columbia River at a certain time, certain period during the year.

And then from those tagging experiments and also from Dr. Rich's data, wherein he divides up the ratio of catch to escapement, actually by months, of steelhead in the main Columbia, why, we derived the ratio of 2 to 1.

And, Mr. Mason, may I quote from Dr. Rich's report that I mentioned?

Q. That's all right; I know you used his information, and I was trying to get a short answer why you applied those to the Deschutes River.

A. I applied them because it is the only possible way to apply, to apply the runs of the Columbia to the Deschutes.

Q. I believe you stated when you got this 100,000 production of adults that you would have 20,000 spring chinooks that would escape; right?

A. Yes.

Q. Of the 20,000 spring chinook estimated to escape for spawning, how many would be used for hatchery spawning and how many would be left for natural spawning at the Metolius?

(Testimony of Donald L. McKernan.)

I mean, have you made any decision on that?

A. I didn't make any decision on that, Mr. Mason. I have some idea; I think we were making our maximum capacity of about 12 million eggs. Now, if we found a hatchery, if we found that we could improve the hatchery of this spring chinook [1462] hatchery over a period of years, why, we would increase that capacity.

Now, 12 million eggs would be slightly less than 1200 fish—now, that would be greater than that; that was including the steelhead—12 million eggs, at about 4,000; that would be around 3,000—3,000 females, or about 6,000 fish would be used; 6,000 of the 120, unless we increased the capacity of our station, which we very likely might do if we found we could increase the efficiency.

Q. Do you know the amount of spawning area now available to spring chinook for natural spawning above Pelton? A. Yes; it's many miles.

Q. You don't have any figures on that area, do you?

A. No, we don't do that; we just don't believe that that's the best method of obtaining estimates, and so we——

Q. What is your estimate of rearing area; that's a very important factor.

A. Very important; and in our estimate of rearing area we have about, something like 10 miles of excellent rearing area and intermittent rearing area entirely—all the way down the Metolius canyon.

(Testimony of Donald L. McKernan.)

Q. But, you haven't made any estimate of the area in square yards?

A. Oh, no; we don't do it that way.

Q. Well, how do you arrive at your conclusion that that's [1463] good area, and how much area there is?

A. The way we normally do is to test the maximum productivity that can be obtained from a water system of that type; that is, we would, by actually testing upstream, downstream the weirs, of which we have one in the State of Oregon now and are carrying on intensive studies on that, we test the productivity of the type of stream of that type.

There isn't enough known in fishery science now to measure areas and say specifically how many fingerling can be produced from it, but it's a most important factor and by statistical manipulation, have determined that.

Q. Mr. McKernan, do you know at what distance below the reservoir surface the water will be drawn into the penstock for use through the powerhouse at this proposed project?

A. My understanding is that the water will be drawn pretty close to the bottom, here, because——

Q. That's enough; you've told me the answer.

Let's go to page 23 of your exhibit; you've given us there in Table 2, your production operation cost of three hatcheries at Entiat, Leavenworth and Winthrop. Are those costs included in the published report?

(Testimony of Donald L. McKernan.)

A. They are not in a published report; they are included in a table supplied me by the Fish and Wildlife Service——

Oh, excuse me, now; I'm not certain that they're not in a published report. [1464]

Q. You don't know, though, do you?

A. I don't know that they are.

Q. Let's take each of these hatcheries separately, now; this question will apply to each one respectively.

Do you know what each of these hatcheries, the three we're talking about, how much money represents salaries, maintenance, buildings, laboratory costs, and feeding costs of the total production costs shown here?

Do you have a breakdown, in other words?

Take one year.

A. These costs, according to the information I obtained when I obtained this table, are the costs of the food itself and the cost of the personnel feeding the food—that is, costs of directly rearing the fish, but do not include other maintenance costs.

Q. Now, do you have a breakdown on food and personnel expense, and so on, of these three factors you gave? A. I have total cost of food.

Q. For what?

A. No, Mr. Mason, I'm afraid this breakdown would not give you what you want.

I'd be glad to let you examine it, if you care to.

You will note that the hatcheries I used are the

(Testimony of Donald L. McKernan.)

ones containing spring chinook or blueback; I used none containing fall chinook, but I used all of them containing those two species. [1465]

Q. I wonder if you have enough copies of this so that we could have it for the record?

A. I don't; it's the only copy I own.

Presiding Examiner: I observe that Mr. Barnaby of the Fish and Wildlife Service is in the room; it may be that they are acquainted with that or would have them here.

Are you acquainted with that, Mr. Barnaby?

Mr. Mason: To save some time, I am interested in poundage.

Mr. Barnaby: Yes, we can have copies of that.

Mr. Phillips: We're agreeable to putting them in the record, even after the close of the hearing, if necessary.

Presiding Examiner: All right, I'll let someone request it.

Mr. Mason: Well, I brought it on, Mr. Examiner; I would like to have it in, and make the request now, and will offer it for identification as the next exhibit at this time, with the understanding that Mr. Barnaby will furnish copies, if that is satisfactory.

It will have a lot of cross examination; there's a lot of figures on here.

Presiding Examiner: What's the title of it, Mr. Mason?

Mr. Mason: The title of it is "Summary of Production and Operation Costs of Fish and Wildlife

(Testimony of Donald L. McKernan.)

Service Hatcheries in Washington, California, Oregon, and Idaho, 1945-49," and it's [1446] in three sheets, Mr. Examiner, second and third sheet being numbered but carrying no title.

Presiding Examiner: If I reserve a number for that, will you undertake to have the copies furnished to the Official Reporter or myself and to the parties by say, July 10th?

Mr. Mason: Yes, sir.

Presiding Examiner: Without objection, then, Exhibit No. 34 will be applied to the tabulation which has just been described by Staff counsel, and may be submitted by him on or before July 10, 1951.

All parties will receive copies of that in the mail in due course.

(The document above referred to was marked for identification as Exhibit No. 34—copies to be furnished by July 10, 1951.)

Now, you may proceed.

Q. (By Mr. Mason): Do you know the age the fingerlings were released at Entiat, Leavenworth and Winthrop hatcheries?

The question is do you know?

A. Yes.

Q. And how old were they?

A. Primarily yearlings.

Q. In all three?

A. Yes, I believe so, Mr. Mason.

Q. I believe you have given this: what age of

(Testimony of Donald L. McKernan.)

fingerlings [1467] did you assume in your estimate of 340,000 pounds, shown on page 23 of your Exhibit 31?

A. Yearlings; yearlings and year plus.

Q. Both?

A. Both; in order to clarify the record, part of those, I believe in these three hatcheries, are also yearlings and year plus. I was a little bit loose with my terminology there.

Q. On this $1.35 per pound of fingerlings produced that you used on page 23 or Exhibit 31, in making that estimate, what cost in cents per pound of fish food did you assume, if you made any assumption?

A. I didn't have to make any assumption; I just had to know the total pounds I wanted to produce and the cost of $1.35 a pound.

I notice the Fish and Wildlife Service cost is around 10 or 11 cents a pound.

Q. You testified on that, and what your costs are, already haven't you? A. Yes.

Q. Do you know what amount of the $1.35 per pound for fingerlings, that you used, how much represents the cost for fish food?

The question again is do you know, fish food cost alone out of that $1.35 per pound?

A. I am not certain. [1468]

Q. How many fingerlings would there be per pound in your estimate of 340,000 pounds?

A. That, again, is about 30 per pound; that is in Exhibit 12, Mr. Mason, page 2.

(Testimony of Donald L. McKernan.)

Q. All right, thank you very much. I wasn't very familiar with that.

Turn to 25 a minute, will you, sir, of Exhibit 31; there's a sentence there about seven lines from the top of your page: "The tendency is for the unit value of kilowatts to drop and for salmon and steelhead to rise."

Will you give us the basis for that statement, please, sir, or the source of it, or any way you want to explain it?

The truth of the matter is, I don't agree with you, and I want to know where you got it.

A. The value of the salmon and steelhead has gone up tremendously——

Q. Let's stick to the unit value of the kilowatts; I won't argue the fish question with you, but I will the power.

A. I'm afraid that our basis for that is not too good; it's mostly hearsay and partly advertising of the power companies in this general region that our cost of electricity has generally declined over the past years.

Q. For your purposes, it would be just as well satisfied to say that the tendency is for salmon and steelhead to rise.

A. That wouldn't be quite as good, would it, because I am [1469] comparing it with kilowatts.

Q. Now, in the last sentence of that statement you say, "In view of the aforementioned comments, it is requested that the request to build a dam at Pelton Site be denied."

(Testimony of Donald L. McKernan.)

It that your opinion you expressed in there?

A. That is both Mr. Johnson's and my opinions. [1470]

Q. Do you know the distance between the proposed dam site and the spawning areas you use in the Metolius?

A. I am not certain about river miles, I think it is about 60 or some such figures as that.

Q. Have you made any specific studies to show that there will be no stratification of the Pelton Reservoir, you testified that there would not be any. I want to know if you made any specific studies with respect to that particular reservoir?

A. That is impossible, of course. The reservoir isn't constructed.

Q. You cannot make theoretical studies knowing what the flowing temperature is?

A. Knowing the capacity of the Pelton Dam and the fact that it would be empty about once every three days any general characteristic about Bonneville which I have considerable knowledge, I think that would justify my saying that it will not stratify. I am almost certain of that. Not only that, I would like to, if I may possibly, call your attention to another publication that I drew upon to make that conclusion. May I do that?

Q. My question was specifically with respect to this project. Does this relate to a reservoir like the Pelton Reservoi ?

This relates to a reservoir on the Columbia River system. The Roosevelt Reservoir at Grand Coulee.

(Testimony of Donald L. McKernan.)

Q. Let me ask you another question then? [1471]

A. All right.

Q. What do you understand the depth will be around here on the proposed site?

About six feet. That means there will be a complete interchange of water about every three days.

Q. You mean the water will be flowing through there every three days and will equal the storage capacity, is that what you mean? A. Yes.

Q. Do you know how many acre feet of water the proposed Pelton Dam will store at normal water level?

A. Around 25,000 acre feet, yes.

Q. Do you know during what time of the day the Pelton Project will be operating and during what time it will be shut down?

A. We have never insofar as I have personally seen, we have not been given a schedule about it, but we understand there will be a peaking point, the Pelton Project itself with a re-regulating dam down below to prevent the rapid fluctuations of the Lower Deschutes.

Q. Mr. McKernan, do you know how many spring chinook and how many steelheads can be raised naturally, reared naturally, in the area above Pelton Dam itself? Do you know?

A. I do not know precisely.

Q. Can you give us your best estimate?

A. Yes, I could give an estimate although I believe that Mr. Johnson [1472] would have been

(Testimony of Donald L. McKernan.)

a better person to ask that question due to the fact——

Q. If you don't think you have enough information, or can you make a good estimate?

A. I would guess, based on our estimates, that many thousand of spring chinook and steelheads could be raised above the Pelton Dam Site, that is probably more than 20,000.

Q. That is natural spawn?

A. I base that upon my knowledge of the Fraser River Sockeye and other rivers where it has similar environmental conditions.

Q. Have made sufficient studies of the food available in that area to make your—to make it possible to support that many fish?

A. We have not made intensive food studies in that particular area.

Q. Have you or your associates or anybody in the Fish Commisison given any consideration to the possibility of screening the Deschutes River and the Metolius at the point at the end of this proposed reservoir with the idea in mind of preserving the areas above to rear fingerlings and also to use for natural spawn if possible?

A. We have thought of that, Mr. Mason, it would entail very expensive bypasses in addition to the mechanical problems of the stream. It would be a considerable loss of water because the bypass water, which would be necessary to take the fish around. [1473]

Q. You have considered it and you don't think

(Testimony of Donald L. McKernan.)

that it would work? A. Yes.

Mr. Mason: That is all I have, Mr. Examiner.

Mr. Higgs: One question.

Redirect Examination

Q. (By Mr. Higgs): Mr. McKernan, do you know the results of temperature determinations in the pullback of the Grand Coulee, known as the Roosevelt Lake? A. Yes.

Q. Did they show a thermo satisfaction, a thermo stratification? A. Thermo stratification?

Q. Yes.

A. No, most of the times of the year—may I quote from this summary of the special scientific report No. 5, United States Fish and Wildlife Service, published in 1949, September, 1949. The most surprising discovery was the almost complete lack of thermo gradient which was a very unusual condition for a lake at this depth.

Q. What is the depth?

A. About 350 feet or deeper where these studies were made. At some of the stations it was 350 feet deep.

They also put—they also found that this particular lake [1474] was very deficient in salmon egg increase also. It was a very poor lake in producing. [1475]

* * * * *

[Endorsed]: No. 13,345. The United States Court of Appeals for the Ninth Circuit. The State of Oregon, The Fish Commission of Oregon, The Oregon State Game Commission, Petitioners, vs. Federal Power Commission, Respondent; Portland General Electric Company, Intervenor. Petition for Review to Set Aside an Order of the Federal Power Commission.

Filed June 17, 1952.

/s/ PAUL P. O'BRIEN,
Clerk of the United States Court of Appeals for the Ninth Circuit.

Minute entry of Argument and Submission

August 7, 1953 (omitted in printing)

In United States Court of Appeals for the Ninth Circuit

Order directing filing of opinion and filing and recording of judgment

February 18, 1954

Ordered that the typewritten opinion and dissenting opinion of Healy, Circuit Judge, this day rendered by this Court in above cause be forthwith filed by the clerk and that a judgment be filed and recorded in the minutes of this court in accordance with the opinion rendered.

In United States Court of Appeals for the Ninth Circuit

No. 13345

Feb. 18, 1954

THE STATE OF OREGON, THE FISH COMMISSION OF OREGON, THE OREGON STATE GAME COMMISSION, PETITIONERS

v.

FEDERAL POWER COMMISSION, RESPONDENT

PORTLAND GENERAL ELECTRIC COMPANY, INTERVENOR

PETITION FOR REVIEW TO SET ASIDE AN ORDER OF THE FEDERAL POWER COMMISSION

Opinion

Filed February 18, 1954

Before STEPHENS, HEALY and ORR, Circuit Judges.

STEPHENS, Circuit Judge.

The Portland General Electric Company, an Oregon non-governmental public utility corporation, applied for and has been granted a license [1] by the Federal Power Commission to construct,

[1] The original application was filed by the Northwest Power Supply Co. of Portland, Oregon, on May 23, 1949, for a license under § 4 (e) of the Federal Power Act, Title 16 U. S. C. A. § 797 (e). On June 15, 1951, a supplemental application was filed by the Northwest Power Supply Co. and the Portland General Electric Co., requesting that the license be granted to the latter.

operate and maintain a hydro-electric plant known as the Pelton Project, numbered 2030, on the Deschutes River [2] in Oregon. The Project is to be located downstream from where Crooked River and Metolius River, two principal tributaries to the Deschutes, flow into the latter. The Project is designed to consist of a concrete dam approximately two hundred five feet high in connection with a powerhouse containing three 30,000 kilowatt generators and is to be built across the river on United States land. Included in the Project, and three miles below the power dam, a "re-regulating" dam is to be constructed which is designed to equate the flow of water as it is released from the upper dam. It is not claimed that the lower dam will be located upon federal land or federally controlled land. Without it the flow below the power dam would be subject to extremes as the water would be released from the power dam in much greater quantity when peak loads of electric energy were required. There will be no diversion of water from the stream, as it will flow, undiminished, through or over the dams and continue down the natural bed. The impounding of water above the upper dam will create a relatively narrow lake in mountainous terrain of five or six miles in length.

We quote from respondent Federal Power Commission's brief (at pages 1 and 2):

"The project, if constructed, would occupy lands of the United States set aside on the west side of the Deschutes River by treaty in 1855 as the Warm Springs Indian Reservation, and additional lands of the United States on the east side of the river. All of the lands of the United States on both sides of the river which would be occupied by the project have been withdrawn from entry, location or other disposal under the public land laws and reserved for power purposes. In addition to these lands, some private lands would be affected by the project.

"The high power dam, and the powerhouse immediately below, will be located entirely upon lands of the United States set aside and reserved for power purposes. * * *."

The State of Oregon, The Fish Commission of Oregon, and The Oregon State Game Commission appeared before the Federal Power Commission hearing and registered objections to the granting of the license on the grounds that the dams would prevent the ascent of anadromous fish to their spawning grounds above the dam sites, and would result in the serious curtailment of the fish population and prevent its increase, and would impair the productivity and usefulness of the extensive State Fish Hatchery on the Metrolius River. They further contended that the Commission was without authority to grant the license applied for

[2] The Deschutes River drains the eastern slopes of the Cascade Range and flows northward, emptying into the Columbia River about fifteen miles upstream from The Dalles, Oregon.

since the applicant had failed to obtain a permit from the Hydro-Electric Commission of Oregon [3] and had not complied with the Oregon law as to fish in the river,[4] as required by § 9 (b) of the Federal Power Act.[5]

Having been unsuccessful in their contentions before the Commission, as aggrieved persons, the objectors have petitioned this court for review of the order issued [6] and upon such review to set aside the order granting the license.

The Izaak Walton League of America (Oregon Division) filed a brief with us as amicus curiae in support of the objectors' plea that the license granted should be set aside.

There is conflict in the evidence as to the probable effect of the proposed Project upon the fish population of the streams affected as well as to the need for the power which the Project is designed to produce. However, there is substantial evidence in support of the Commission's findings as to the need for power, but in our opinion the evidence practically demonstrates that the Project would seriously affect the normal population of the fish in the river and the usefulness of the State Fish Hatchery. Whether the jurisdiction of the Federal Power Commission was broad enough to authorize such findings as binding against the State of Oregon, if supported by the evidence, will presently be considered.

The Commission, in its consideration of the application for the license, based its jurisdiction to entertain and grant the application solely upon the fact that the principal or upper dam is to be

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[3] Vol. 8, Oregon Compiled Laws Ann. § 119-103: "From and after the taking effect of this Act, no water power project involving the use of the water of any of the lakes, rivers, streams or other bodies of water within the state of Oregon including waters over which this state has concurrent jurisdiction, for the generation of electricity, shall be begun or constructed except in conformity with the provisions hereof."

But compare Vol. 8, Oregon Compiled Laws Ann. § 119-101.

[4] Vol. 5, Oregon Compiled Laws Ann. § 83-314: "(a) It shall be unlawful for any person to construct any dam or artificial obstruction across any stream in this state frequented by salmon or other food fish, or to maintain any such dam or obstruction heretofore erected without providing a passageway for such fish over such obstructions, such passageway for fish to be constructed as near the main channel as may be practicable. • • •"

Section 12 of the Act of Congress, August 14, 1848, 9 Stat. 323, 328, establishing the territorial government of Oregon, provided as follows: "And be it further enacted, that the rivers and streams of water in said Territory of Oregon in which salmon are found, or to which they resort, shall not be obstructed by dams or otherwise, unless such dams or obstructions are so constructed as to allow salmon to pass freely up and down such rivers and streams."

Oregon Constitution of 1859, § 7, Art. XVIII: "All laws in force in the territory of Oregon when this Constitution takes effect, and consistent therewith, shall continue in force until altered or repealed." Vol. 9, Oregon Compiled Laws Ann., p. 311.

[5] § 9 (b) of the Federal Power Act, 41 Stat. 1068, Title 16 U. S. C. A. § 802 (b): "That each applicant for a license hereunder shall submit to the commission—

"(a) • • •

"(b) Satisfactory evidence that the applicant has complied with the requirements of the laws of the State or States within which the proposed project is to be located with respect to bed and banks and to the appropriation, diversion, and use of water for power purposes and with respect to the right to engage in the business of developing, transmitting, and distributing power, and in any other business necessary to effect the purposes of a license under this Act."

[6] § 313 of the Federal Power Act, 49 Stat. 860, Title 16 U. S. C. A. § 825 l (b). Under this section an aggrieved person may petition for a review in the United States Court of Appeals, which court may "affirm, modify, or set aside such order in whole or in part."

built upon and affects land reservations[7] of the United States,[8] inclusive of the lands of the Warm Springs Indian Reservation.[9] The Indians of the Reservation have given their consent to the construction of the Project.

Since Congress has delegated to the Federal Power Commission the authority to license power producing dams which will occupy or affect United States land and land reservations, it is incontrovertible that a Federal Power Commission license is necessary to the construction of the proposed Project by the applicant. The extent of the right which the federal license which has been granted carries or purports to carry, is in issue here.

The aggrieved parties argue that the Commission has no legal power to grant a license unless and until the applicant has shown the Commission that it has complied with all applicable state laws, and they cite instances of conflict between the Project as it is contemplated, and Oregon state law. In support of their contention they cite § 9 (b) of the Federal Power Act which reads as follows:

"Satisfactory evidence that the applicant has complied with the requirements of the laws of the State or States within which the proposed project is to be located with respect to bed and banks and to the appropriation, diversion, and use of water for power purposes and with respect to the right to engage in the business of developing, transmitting, and distributing power, and in any other business necessary to effect the purposes of a license under this Act." 41 Stat. 1068.

The application of the quoted section of the Federal Power Act (§ 9 (b)) to the point has been negatived by the Supreme Court in the case of First Iowa Hydro-Electric Coop. v. Federal Power Comm'n, 1946, 328 U. S. 152, 177, 178, wherein the court said: "It [§ 9 (b)] does not itself require compliance with any state laws. Its reference to state laws is by way of suggestion to the Federal Power Commission of subjects as to which the Commission may wish some proof submitted to it of the applicant's progress. * * * The need for compliance with applicable state laws, if any, arises not from this federal statute but from the effectiveness of the state statutes themselves."

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[7] The site of the upper dam cannot be designated "public lands" of the United States, since under § 3 (1) of the Act such lands are defined as being "subject to private appropriation or disposal under public land laws." The upper dam is to be constructed upon reservations as defined in § 3 (2) of the Act, i. e., lands "reserved, or withheld from private appropriation and disposal under the public land laws * * *" but excluding national monuments or national parks.

[8] Title 16 U. S. C. A. § 797 (e), § 4 (e) of the Federal Power Act. See also, § 23 (b) of the Federal Power Act, Title 16 U. S. C. A. § 817, which makes it unlawful to build a dam or powerhouse upon federal land except under the terms of a license issued by the Federal Power Commission.

[9] We here treat the Indian lands as United States lands since, in the absence of treaty or special Act of Congress to the contrary, the fee title to Indian lands is in the United States subject to their use and occupancy by the Indians. Hynes v. Grimes Packing Co., 1949, 337 U. S. 86, 103, 104; St. Marie v. United States, 1938, 24 F. Supp. 237, 239, 240, affirmed 108 F. 2d 876.

We hold that § 9 (b) neither enlarges nor limits the Federal Power Commission so far as the authority to grant the application for license is concerned. It specifically gives the Commission the right *to* ascertain needed information which would affect the Commission's discretion in granting or withholding the license and as to details concerning the Project, its construction, capacity, and desirability.

Our conclusion as to the meaning and effect of § 9 (b) does not, however, destroy the objectors' case, for they rely upon the more fundamental claim that the Deschutes River is a state stream and that the State of Oregon has sovereign power over it and its waters.

On the other hand, the applicant for the license and the Commission claim, under the facts of this case, that the Commission's jurisdiction fully includes the power to authorize the construction and operation of the Project and that the Oregon State laws pertaining to dams on the Deschutes River and to the accommodation of anadromous fish in the river and the fact that the Project would greatly damage or ruin the effectiveness of an extensive state fish hatchery, constitute no bar thereto.[10] It is undisputed that the United States owns the site of the upper or power dam. It does not, however, own the site of the lower dam or all of the land to be flooded by impounded water.

The claimed authority for issuance of the Commission's license is derived from the Federal Power Act and Article IV, § 3, Cl. 2, of the United States Constitution, the latter of which reads as follows:

"The Congress shall have Power to dispose of and make all needful Rules and Regulations respecting the Territory and other Property belonging to the United States; * * *."[11]

The Constitutional provision has been given a very broad interpretation by the courts,[12] see United States v. City and County of San Francisco, 1940, 310 U. S. 16, 29. However, it has limitations. The Supreme Court in Ashwander v. Tenn. Valley Au-

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[10] In paragraph (4) of the Commission's "Order Issuing License (Major)", which order is in fact the Commission's findings and conclusions, we find the following: "The refusal of the Oregon Fish Commission, acting under an existing law of the State of Oregon, to issue a permit for the Pelton project, is not a bar to the issuance of a Federal Power Act license and to the construction and operation of the proposed project under such license, if that project is found to meet the standards specified for comprehensive water power development in the Federal Power Act."

[11] If, in addition to the United States ownership of the proposed dam site, the Deschutes River were navigable, the problem presented by this review would be somewhat similar to that presented to us in State of Washington Dept. of Game v. Federal Power Comm'n, 9 Cir., 1953, 207 F. 2d 391. But the Commission's examiner, in his report to his principal, found the Deschutes River to be non-navigable and that the Project itself would not involve the subject of interstate commerce. The Commission itself made no conclusions on those subjects, and the Commission's brief claims nothing as to those subjects, and consistently refers to the Deschutes River as being "allegedly non-navigable." In a comparable situation the Supreme Court, in United States v. Cress, 1917, 243 U. S. 316, 318, said: "It may be supposed that Whiteoak Creek was not a navigable stream, but there was no finding on the subject."

[12] Whether the right of a licensee of the government to use government property is as broad as the government's right to use it, is not raised in the case and we have not considered it.

thority, 1936, 297 U. S. 288, 338, in referring to the right of the United States to its own property, said, "The Constitutional provision is silent as to the method of disposing of property belonging to the United States. That method, of course, must be an appropriate means of disposition according to the nature of the property, it must be one adopted in the public interest as distinguished from private or personal ends, and we may assume that it must be consistent with the foundation principles of our dual system of government and must not be contrived to govern the concerns reserved to the states."

Under the authority of this Constitutional provision, the Congress conferred upon the Federal Power Commission, by § 4 (e) of the Federal Power Act, the right to license the construction of hydroelectric plants "upon any part of the public lands and reservations of the United States."

The Commission, in its brief, recites the history of the Federal Water Power Act of June 10, 1920, and traces it into the Federal Power Act of 1940, and deduces therefrom that "[t]he efforts of the Commission were to be 'directed toward a constructive national program of intelligent, economical utilization of our power resources.[13]' " We agree, but the Congress did not and could not change the ownership or control of waters by the adoption of such policy. If the Deschutes River waters were state waters before the adoption of the policy, they remained so after the legislation referred to by the Commission.

We proceed to the question of the sovereign power over the waters of the Deschutes River.

Within certain limitations, the sovereignty of the State of Oregon extends over the control of the waters located within the state as definitely as over the lands within its borders. The United States government, however, originally had the control of waters within the public domain which had not been ceded to the states and it has paramount rights in navigable streams under the Commerce clause of the United States Constitution. (Art. I, § 8, Cl. 3.)

A few generations ago there were large tracts of western lands in the public domain which were arid or semiarid, but through which streams flowed. Under the doctrine of riparian rights, water could not be appropriated and conducted distances from the streams, and for that reason there was a great waste of water, and the aridity of lands to which water was physically available but to which it could not legally be conducted, was perpetuated. Congress provided the remedy by separating the title to the land from the right to the control of the water and allowed

[13] See House Report No. 61, 66th Congress, 1st Session, dated June 24, 1919.

the states, within which such waters flowed, to regulate them. Acts of Congress of 1866,[14] 1870,[15] and the Desert Land Act of 1877.[16]

Most of the states to which such legislation applied, including Oregon, adopted the doctrine of beneficial use and prior appropriation. Oregon early provided that waters of that state belong to the public and cannot be appropriated without the state's consent. Vol. 8 Oregon Compiled Laws Ann. § 116–401 et seq., see California-Oregon Power Co. v. Beaver Portland Cement Co., 1935, 295 U. S. 142, 163, 164. The Deschutes River flows from and partially through lands to which the Congressional Act applies. The effect of the Desert Land Act of 1877 is thoroughly discussed in Kansas v. Colorado, 1907, 206 U. S. 46.

Because of its recent date and the applicability of its expressions, we quote briefly from the opinion in California-Oregon Power Co. v. Beaver Portland Cement Co., supra, at page 162: "As the owner of the public domain, the government possessed the power to dispose of land and water thereon together, or to dispose of them separately. Howell v. Johnson, 89 Fed. 556, 558. The fair construction of [Desert Land Act, 1877] is that Congress intended to establish the rule that for the future the land should be patented separately; and that all nonnavigable waters thereon should be reserved for the use of the public under the laws of the states and territories named. The words that the water of all sources of water supply upon the public lands and not navigable 'shall remain and be held free for the appropriation and use of the public' are not susceptible of any other construction * * *". And again, at page 163 of the same opinion, "Nothing we have said is meant to suggest that the act, as we construe it, has the effect of curtailing the power of the states affected to legislate in respect of waters and water rights as they deem wise in the public interest. What we held is that following the Act of 1877, if not before, all nonnavigable waters then a part of the public domain became publici juris, subject to the plenary control of the designated states * * *."

Long before the Supreme Court had spoken in California-Oregon Power Co. v. Beaver Portland Cement Co., supra, Judge Gilbert, speaking for this court in United States v. Hanson, 9 Cir., 1909, 167 Fed. 881, 884, had occasion to say that "* * * [a]lthough the [U. S.] government on admitting a state into the Union relinquishes its control of the disposition of the waters of the state, except in so far as the regulation of commerce is concerned, it relinquishes none of its rights over the public lands

[14] 14 Stat. 251, 253; Title 43 U. S. C. A. § 661.
[15] 16 Stat. 217, 218; Title 43 U. S. C. A. § 661.
[16] 19 Stat. 377; Title 43 U. S. C. A. § 321.

included within the territorial limits of the state. The government is still sovereign over such lands, and, in the nature of things, so long as it does not interfere with state legislation over waters of the state, it must have the same power to improve, protect, and offer for settlement or sale the public lands within a territory." In the same opinion at the same page, Judge Gilbert quotes from Kansas v. Colorado, supra, to the same effect.

The Commission makes some claim that the anadromous fish in the Deschutes River waters do not belong to the state or that the state has no right over the federal government to legislate in regard to such fish. We disagree. We think the regulation of the river as it flows through the state is one of the powers of the state's sovereignty and includes regulatory powers as to fish in state waters.

We fully realize that most of the cases we have cited arose from disputes over the use of water for irrigation and that the cession of the United States of control over waters in or from the public domain to the states was motivated by the Congressional desire to free such waters from the restrictive doctrine of riparian rights so that they could be applied economically to land for irrigation. Nevertheless, the cession was a surrender of all regulatory power over such waters and was not limited to their use in irrigation. Whatever, if any, limitation there was on Oregon's complete sovereignty over the waters of the Deschutes River, was wiped out by the Desert Land Act of 1877.

Undoubtedly, the Commission has the legal right to give its approval to the Project as a whole. And we do not doubt but that it has the right to grant its permissive license to the construction of the proposed dam upon its own property. But the Commission has issued no mere permissive license. It has issued a license purporting to grant the complete legal right to the construction and operation of the whole Project. In this, we think, it has exceeded its legal jurisdiction in that the ownership of the power dam site does not empower the United States government to use the waters of the Deschutes River either at the site of the power dam or elsewhere, contrary to Oregon state law. See State of Iowa v. Federal Power Commission, 8 Cir., 1949, 178 F. 2d 421, 427. See, also, Niagara Mohawk Power Corp. v. Federal Power Comm'n, CADC, 1952, 202 F. 2d 190, 207, certiorari granted, 345 U. S. 955.

Underlying such holding is our opinion that the Commission has trenched upon the sovereignty of the State of Oregon. It is true that the Commission has gone a long way toward minimizing the harm which may result from the construction and operation of the Project, but it has done so, not as a legal requirement, but as a commendable grace which the Commission accords to the

State. The fundamental principle, however, is not whether the Project will cause large, small, or any damage. It is that Oregon has the right to regulate its own waters in its own chosen way.

The order issuing the license is set aside.

Healy, Circuit Judge, dissenting

I am not able to agree that the Federal Power Commission lacks jurisdiction to license the construction of the proposed hydroelectric plant, nor do I think that in doing so it has trenched upon the sovereignty of the State of Oregon. Commission authority is conferred in § 4 (e) of the Federal Power Act to license such projects, not only upon navigable streams, but "upon any part of the public lands and reservations of the United States." And to like effect see § 23 (b) of the Act, negativing the right of any person, State, or municipality to undertake such project without Federal license.

The projected power plant would occupy lands of the United States set aside on the west side of the Deschutes River by treaty in 1855 as the Warm Springs Indian Reservation, and lands of the United States abutting the eastern or opposite side of the stream. The latter, originally public lands, have from time to time, commencing with the year 1909, been withdrawn from entry or other disposal under the public land laws and reserved for power purposes.[17] Thus the stretch of the Deschutes affected, including its bed and banks, is entirely on reserved lands which have been severed from the public domain and appropriated to a public use.

As my associates appear to recognize, the power of Congress over the use or disposition of the lands of the United States is virtually unlimited and may be exercised in such manner as is consistent with its views of public policy. United States v. California, 332 U. S. 19, 27; United States v. City and County of San Francisco, 310 U. S. 16, 29. Hence to substantiate its claim of control over the use of the waters of the Deschutes River on the lands of the United States involved here, the State of Oregon is under the necessity of showing that Congress by express grant has given it such control. The State undertakes to discharge its burden in this respect by appealing to the Acts of Congress of

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[17] The majority do not discuss or so much as mention these withdrawals, so whether or not they regard them as for any reason ineffective is not ascertainable from their opinion. It is, I think, unquestionable that the power delegated by Congress to the states to control waters of streams on public lands may be recaptured by the Federal government by changing the status of the land to reserved lands. Such withdrawals would be completely effective except to the extent that they impinge upon or interfere with intervening vested rights acquired by persons pursuant to state laws. No such impingement or interference exists or is claimed to exist here.

The intent of Congress to effect withdrawals for power purposes is evidenced by § 24 of the Federal Power Act, reading in pertinent part as follows: "Any lands of the United States included in any proposed project under the provisions of this Part shall from the date of filing of application therefor be reserved from entry, location, or other disposal under the laws of the United States until otherwise directed by the Commission or by Congress."

1866, 1870 and 1877;[18] and it is upon the basis of those Acts that the majority of the court has ordered the Commission's license to be set aside.

In my opinion the reliance is wholly misplaced. As is apparent from their wording, these statutes have reference only to streams and other bodies of water on the public lands, that is, lands subject to entry or other mode of acquisition under the public land laws.[19] They have no application to waters on reserved lands. That such is the case has been several times affirmed by this court; and the proposition does not appear to have been authoritatively disputed anywhere until now. Witness the following from United States v. McIntire, 9 Cir., 101 F. 2d 650, 654: "Appellees seem to contend that Michel Pablo acquired by prior appropriation the rights in question by local statute or custom, and that the Act of July 26, 1866, 43 U. S. C. A. § 661, requires recognition of those rights. That statute, however, applies only to 'public' lands. [Citing cases.] Lands which are reserved are severed from the public domain. [Citing cases.] The statute mentioned, therefore, does not, we think, apply here." Consult, also, Winters v. United States, 9 Cir., 143 Fed. 740, a case dealing, as here, with waters of a stream bordering on an Indian reservation. At page 747 of the report we said: "The law is well settled that the doctrine of appropriation under said statutes [referring to the Desert Land Act of 1877], * * * applies only to public lands and waters of the United States. [Giving citations.] And it is equally well settled that, when the lands of the government have been legally appropriated or reserved for any purpose, they become severed from the public lands, * * *"[20]

Moreover, the petitioners have not shown that the United States has consented to State control of the fishing resources in the waters of the Deschutes on lands of the United States reserved for power purposes or reserved for the Warm Springs Indians. The 1855 treaty with the latter contains a proviso to the following effect: "Provided, also, That the exclusive right of taking fish in the streams running through and bordering on said reservation

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[18] The Acts of 1866 and 1870 are codified together in 43 U. S. C. A. § 661; the Desert Land Act of 1877 is found in 43 U. S. C. A. § 321.

[19] Kinney's authoritative work on Irrigation, § 124, states: "The term 'public lands' only embodies such lands as are subject to the sale or other disposition by the United States under general laws. It is a well-settled principle that land once reserved by the government or appropriated for any special purpose ceases to be a part of the public lands, * * *"

[20] See also discussion of the limited effect of these statutes in United States v. Walker River Irr. Dist., 9 Cir., 104 F. 2d 334, at pp. 336 and 337. Among the many authorities there cited and analyzed was United States v. Rio Grande Irrigation Co., 174 U. S. 690. In its opinion in that case the Supreme Court, among other things, considered the several congressional acts in question saying at p. 703: "Although this power of changing the common-law rule as to streams within its dominion undoubtedly belongs to each State, yet two limitations must be recognized: First, that in the absence of specific authority from Congress a State cannot by its legislation destroy the right of the United States, as the owner of lands bordering on a stream, to the continued flow of its waters; so far at least as may be necessary for the beneficial uses of the government property. Second, that it is limited by the superior power of the General Government to secure the uninterrupted navigability of all navigable streams within the limits of the United States."

is hereby secured to said Indians; * * *" 12 Stat. 964. It is thus indisputable that the Indian Tribe, not the State of Oregon, possesses authority, as granted by the treaty, to control fishing resources of the Deschutes bordering on its reservation no less than those in streams entirely within the boundaries of the reservation. As contemplated by § 10 (e) of the Federal Power Act, the Warm Springs Indians have given their approval to the Pelton project, hence have consented to the use of their lands for power purposes and to the consequent interference with their exclusive fishing rights.[21]

Although the subject is hardly more than hinted at in the main opinion, the majority would seem to place some reliance on the fact that the site of the "re-regulating" dam to be constructed some three miles below the hydroelectric plant is not shown to embrace federally owned or controlled lands. Accordingly it is desirable that this phase of the matter be given brief attention. As the Commission points out, the original Pelton project was to consist of the high dam with the power plant immediately below it. It is this dam and power plant which will necessarily obstruct the seasonal passage of anadromous fish to their spawning grounds upstream, hence the objection interposed by the State and its agencies is to the high dam, not to the re-regulating dam. The latter will provide no power for generation. It was added to the project at the insistence of the State Hydroelectric Commission that the Power Company submit plans for either eliminating or regulating the operational fluctuations of water below the power dam, it being thought by the State Commission that such fluctuations would pose a danger to fishermen or vacationers down stream and would be injurious to fish life. Inasmuch as the Federal Power Commission's order respecting the installation of a re-regulating dam apparently conforms in every way to the State's requirements, there would appear to be no case or controversy here with respect to this portion of its order. Moreover, it would be wholly out of keeping with the State's desires if we were to declare this portion of the order invalid while upholding the balance. Hence the controversy concerns only the matters already discussed, namely the right of the United States to license the construction of the high dam and the power plant.

It should be borne in mind that the licensing or construction of this hydroelectric project will in no way impinge upon vested rights or interfere with the appropriation, diversion, distribution

[21] The majority opinion in footnote 4 quotes a provision of the Act of Congress of August 14, 1848, establishing the territorial government of Oregon, prohibiting dams in streams unless so constructed as to allow salmon to pass freely. What present significance, if any, my associates assign to this provision is not determinable from their opinion. That it can have none is evident, since, to the extent that such Act or any other Federal statutes enacted prior to the Federal Power Act are inconsistent with provisions of the latter, those prior acts are repealed by § 29 of the Power Act providing "That all Acts or parts of Acts inconsistent with this Act are hereby repealed * * *"

or use of water of the stream for irrigation or other purposes.[22] The sole grievance as respects the installation is that it will halt the ascent of anadromous fish (here, salmon and steelhead trout) to their spawning grounds on the upper reaches of the Deschutes. It is agreed on all sides that the height of the power dam is such that resort to fishways would be utterly fruitless. Hence the agencies of the State make no complaint on the score of lack of fishways; they seek, rather, to veto the project outright because of its inevitable blocking of the upstream passage of the fish. As my associates are obliged to concede, the Commission has gone to great lengths toward meeting State objections by requiring resort to substitute methods which it believes will be effective. The Power Company is placed under obligation to make extensive contributions, running into many hundreds of thousands of dollars annually, to install facilities for trapping the fish and taking their eggs, and for enlarging the capacity of existing hatcheries, including the Metolious hatchery. As stated in its opinion, the Commission found "no substantial evidence to show that the facilities proposed for conserving the fish will not maintain existing runs. Moreover, there are indications that the runs can be increased."[23]

But these considerations apart, the First Iowa case, 328 U. S. 152, makes it crystal clear that state laws or objections cannot stand as a legal bar to federal authorization of a power project which is within federal competence and which, in the judgment of the Commission, will be in the public interest and will meet the standards specified in the Federal Power Act for comprehensive power development.

[File endorsement omitted.]

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[22] Consult § 27 of the Federal Power Act. The purposes of this section are analyzed by the Supreme Court in the First Iowa case cited in the main opinion, 328 U. S. 152, at pp. 175 et seq.

[23] The Power Commission found that in recent years the Deschutes has been only a sparse producer of anadromous fish. As a probable reason for the decline in the annual runs as compared with those of earlier generations, it commented on the effect of the increased irrigation diversions from the Upper Deschutes and its two principal tributaries, the Crooked and Metolious Rivers, which enter the main stream above the site of the Pelton project. These diversions appear to have almost completely depleted the waters of these streams in the spawning season and to have depleted also the natural food present in them.

In United States Court of Appeals for the Ninth Circuit

No. 13345

THE STATE OF OREGON, THE FISH COMMISSION OF OREGON, THE OREGON STATE GAME COMMISSION, PETITIONERS

v.

FEDERAL POWER COMMISSION, RESPONDENT

PORTLAND GENERAL ELECTRIC COMPANY, INTERVENOR

Judgment

Entered February 18, 1954

PETITION FOR REVIEW TO SET ASIDE AN ORDER OF THE FEDERAL POWER COMMISSION

This cause came on to be heard on the Transcript of the Record and upon Petition for Review to Set Aside an Order of the Federal Power Commission. and was duly submitted.

On consideration whereof, it is now here ordered and adjudged by this Court, that the Order of the said Federal Power Commission issuing the license be, and hereby is set aside.

[File endorsement omitted.]

In United States Court of Appeals

Order denying petition for rehearing

April 28, 1954

On consideration thereof, and by direction of the Court, it is ordered that the petition of Respondent, filed March 20, 1954, and within time allowed therefor by rule of court, for a rehearing of above cause be, and hereby is denied.

[Clerk's certificate to foregoing transcript omitted in printing.]

Supreme Court of the United States

No. —, October Term, 1954

FEDERAL POWER COMMISSION, PETITIONER

v.

THE STATE OF OREGON, THE FISH COMMISSION OF OREGON, THE OREGON STATE GAME COMMISSION

Order extending time to file petition for writ of certiorari

Filed July 23, 1954

Upon consideration of the application of counsel for petitioner,
It is ordered that the time for filing petition for writ of certiorari in the above-entitled cause be, and the same is hereby, extending to and including September 25th, 1954.

HUGO L. BLACK,
Associate Justice of the Supreme Court of the United States.

Dated this 23d day of July 1954.
[File endorsement omitted.]

Supreme Court of the United States

No. 367, October Term, 1954

FEDERAL POWER COMMISSION, PETITIONER

v.

THE STATE OF OREGON ET AL.

Order allowing certiorari

Filed November 8, 1954

The petition herein for a writ of certiorari to the United States Court of Appeals for the Ninth Circuit is granted.
And it is further ordered that the duly certified copy of the transcript of the proceedings below which accompanied the petition shall be treated as though filed in response to such writ.